

REVIEW AND APPROVALS

WALLKILL RIVER NATIONAL WILDLIFE REFUGE

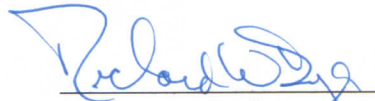
Sussex, New Jersey

ANNUAL NARRATIVE REPORT

Calendar Years 1997 and 1998

  
Refuge Manager

4/18/2003  
Date

  
Refuge Supervisor

5/19/03  
Date

  
Regional Office Approval

5/20/03  
Date

**WALLKILL RIVER NATIONAL WILDLIFE REFUGE**

**Sussex, New Jersey**

**ANNUAL NARRATIVE REPORT**

**Calendar Years 1997 and 1998**

**U.S. Department of the Interior**

**Fish and Wildlife Service**

**NATIONAL WILDLIFE REFUGE SYSTEM**

## INTRODUCTION

The Wallkill River National Wildlife Refuge (refuge) was established on November 16, 1990 by authorizing legislation P.L. 101-593 Sec. 107 of H.R. 3338. The refuge has an approved acquisition boundary which surrounds 7,500 acres along the Wallkill River, one of the few north flowing rivers in the world. It is situated predominately in northwestern New Jersey with parcels in Vernon, Wantage and Hardyston Townships of Sussex County, New Jersey and the Town of Warwick in Orange County, New York. Acquired lands totaled 3,497 acres by the end of 1997 and 3,381 acres by the end of 1998.

The refuge was established: 1) to preserve and enhance the refuge lands and waters in a manner that will conserve the natural diversity of fish, wildlife, plants, and their habitats for present and future generations; 2) to conserve and enhance populations of fish, wildlife, and plants within the refuge, including populations of black ducks and other waterfowl, raptors, passerines, and marsh and water birds; 3) to protect and enhance the water quality of aquatic habitats within the refuge; 4) to fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats; and 5) to provide opportunities for compatible scientific research, environmental education, and fish and wildlife-oriented recreation.

The refuge lies within two physiographic provinces – the Appalachian Ridge and Valley Province on the west and the Highlands on the east. The Wantage and Vernon terrains vary from the relative flatness of river floor at an elevation slightly less than 400 feet above mean sea level to mountain peaks and ridges in excess of 1,400 feet in elevation. Much of the refuge is either riverine floodplain or rolling hills. The elevations along the western refuge boundary in Wantage Township range between 500 and 650 feet. The refuge in Vernon is more mountainous as Pochuk Mountain transects the town in a northeast-to-southwest direction. The terrain steepens rapidly from the river bed to 1,100 feet above mean sea level along Pochuk Mountain.

The refuge will protect 4,200 acres of freshwater wetlands and 3,300 acres of adjacent upland when acquisition is complete. Wetland habitat types include 1,600 acres of palustrine forest, 1,500 acres of emergent marsh, 600 acres of wet meadow, 400 acres of scrub-shrub marsh, and 100 acres of open water. Upland habitat types include 2,500 acres of agricultural land and 800 acres of hardwood forest.

The bog turtle, listed in November 1997 as a threatened species under the Federal Endangered Species Act, is found on at least two locations within the refuge boundary and has the potential to be found on several additional locations within the refuge's approved acquisition boundary. The bald eagle and the peregrine falcon are occasionally seen on the refuge.

The Wallkill River bottomlands are unique in the large number (48) of New Jersey State-endangered, threatened, and special concern species utilizing the area. Few areas in the northern part of the State harbor such a large concentration of species in need of protection. Confirmed State-listed species found within the refuge include the short-eared owl, barred owl, red-shouldered hawk, Cooper's hawk, northern harrier, savannah sparrow, sedge wren, bobolink, great blue heron, wood turtle, and bog turtle. The refuge also offers excellent potential to support breeding and migrating osprey, a threatened species in New Jersey.

Five of the 72 fish and wildlife species designated by the Service as National Resource Plan species also occur within the refuge boundaries. These are the black duck, wood duck, mallard, American woodcock, and great blue heron. Thirteen species of migratory nongame birds of management concern in the northeast (U.S. Fish and Wildlife Service (Service), 1992) are found at some time during the year on the refuge as well and 26 of the Audubon Watch List species are found on the refuge.

The Wallkill River bottomlands are one of the few large areas of high quality waterfowl habitat remaining in northwestern New Jersey. During migration, this area attracts large numbers of waterfowl including black ducks, mallards, green-winged teal, blue-winged teal, wood ducks, Canada geese, common mergansers, and hooded mergansers. Extensive nesting habitat is provided for the wood duck, mallard and Canada goose. Other waterfowl species, including the black duck, can nest on the refuge, but in much lesser numbers.

The refuge straddles two major migration corridors for waterfowl moving between eastern Canada and the Atlantic coast, and the Delaware River and Hudson River corridors. Waterfowl from both corridors stop to rest and feed in the extensive wetlands along the Wallkill River. These migration corridors are particularly important to the black duck.

A number of colonial water birds are found on the refuge, although only great blue heron and green heron are common. The flooded areas of the refuge, such as the bottomland shallows and marshes, provide feeding, nesting and resting areas for these aquatic feeders.

A great variety of game and non-game birds, mammals, reptiles and amphibians inhabit the refuge. White-tailed deer, wild turkey, beaver, mink, muskrat, raccoon, red fox, gray fox, coyote, and black bear are common species. Bobcat, otter, and ruffed grouse are found on the refuge but are not common.

The Wallkill River itself is an excellent warmwater fishery for largemouth bass, smallmouth bass, pickerel, perch, channel catfish, bullheads and sunfish.





Refuge views from the Appalachian Trail. *FWS 10/97*

## 1997 -1998 ANNUAL NARRATIVE REPORT

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## A. HIGHLIGHTS

Fran Stephenson joined the refuge staff as our new Office Assistant (OA) in April 1997.

Refuge Operations Specialist (ROS) Renee Robichaud transferred to Imperial NWR in July 1997.

Kevin Holcomb joined the staff as the refuge's first Biological Technician (BT) in August 1997.

Biological Student Trainee (BST) Lamar Gore completed his cooperative education experience and his grassland bird research project in 1997.

Jeff Shryer joined the staff in March 1998 as the refuge's new ROS, filling the vacancy created when Renee Robichaud moved to Arizona.

Maintenance Worker (MW) Terry Mitchell transferred to Blackwater National Wildlife Refuge (NWR) in July 1998.

Biological surveys began and cooperative research efforts involving bats and kestrels were conducted by nearby universities.

The first habitat restoration projects on the refuge were completed - a 17-acre warm season grassland and a 4-acre wetland restoration.

Sixteen pair of black ducks from Patuxent Wildlife Research Center were released at Bassetts Bridge.

Developed a conservation network in New York State for the protection of the grasslands at the Galeville Army Training Site as a new refuge.

The refuge instituted a trapping program to control nuisance beaver and muskrat.

The visitor services plan was finalized and volunteers worked with refuge staff to establish the Wood Duck Nature Trail. This 1.5-mile long trail on the former New York, Susquehanna, and Western railroad bed was dedicated in a public ceremony on October 12, 1997. In 1998, the Liberty Loop Trail was opened in Pine Island, New York and Vernon, New Jersey.

Fishing and canoe access was provided on the Wallkill River at Bassetts Bridge in Wantage, New Jersey.

The former farmhouse on the Dagmar Dale Farm was renovated and refuge staff began moving in late December 1998.

## B. CLIMATIC CONDITIONS

In 1997, temperatures for the year ranged from - 4 degrees to 95 degrees Farenheit with snowfall totaling over three feet and rain over 34 inches. April really fooled us this year with a surprise snow storm that dumped 20 inches of heavy snow on April 1<sup>st</sup>.

TABLE 1. TEMPERATURE AND PRECIPITATION TOTALS FOR 1997					
Month	High (Farenheit)	Low (Farenheit)		Precipitation (Inches)	Snow (Inches)
January	49	-4		2.18	5.00
February	68	35		1.11	4.00
March	68	13		4.30	4.23
April	73	24		2.95	20.00
May	79	33		2.78	
June	95	44		1.33	
July	95	47		2.74	
August	92	50		7.11	
September	84	34		3.27	
October	83	23		2.03	
November	66	17		4.09	
December	63	12		0.29	3.00
Annual High/Low	95	-4	Totals	34.18	36.23

Although the temperature range for 1998 was very similar to 1997, the big difference between these two years was the precipitation. There was a lack of April showers and only 9 ½ inches of snow for the entire year. Quite a contrast from the previous year.

TABLE 2. TEMPERATURE AND PRECIPITATION TOTALS FOR 1998					
Month	High (Farenheit)	Low (Farenheit)		Precipitation (Inches)	Snow (Inches)
January	63	3		2.80	
February	52	12		2.22	2.50
March	88	11		2.28	7.00
April	74	29		0.81	
May	90	37		2.05	
June	91	40		2.83	
July	90	53		2.10	
August	90	43		2.05	
September	90	32		1.96	
October	76	30		2.71	
November	65	22		1.42	
December	71	6		0.51	
Annual High/Low	91	3	Totals	21.64	9.50

### C. LAND ACQUISITION

#### 1. Fee Title

On January 1, 1997, the refuge encompassed 2,937.8 acres. During the next two years, an additional 943 acres would be acquired, bringing the total refuge acreage on December 31, 1998 to 3,881 acres. Table 3 provides a history of land acquisition by calendar year.

The Service requested \$1,500,000 to purchase 8 tracts totaling 900 acres with Migratory Bird Conservation Fund (MBCF) monies in Fiscal Year (FY) 97 and a 34.5-acre of upland/wetland habitat in May 1998. Tracts 47 (Paling), 85 (Kuperus), 91 and 119 (Bicsak), much of 23 (Van Althuis), and most of tract 55 (Alice Myslinski) were funded by the MBCF.



<b>TABLE 3. LAND ACQUISITION TOTALS BY YEAR</b>		
<b>CALENDAR YEAR</b>	<b>ACRES ACQUIRED</b>	<b>CUMULATIVE ACREAGE</b>
1992	1,086.7	1,086.7
1993	487.6	1,575.3
1994	894.2	2,469.5
1995	225.5	2,695.0
1996	243.8	2,938.8
1997	559.2	3,498.0
1998	383.8	3,881.8

Ten parcels totaling almost 238 acres were added to the refuge boundary by categorical exclusion. These were a small addition to tract 55, the establishment of tracts 120 (Josephine Wesloske), 121 (L. Myslinski), 122 (M. Bowman), 123 (I. Wesloske), 124 (John Wesloske), tract 135 (Appel), tract 136 (Egan), Clynes (no tract number), and 2 (NJDOT). This increased land added to the refuge acquisition boundary by categorical exclusion to 366.3 out of a possible 750 acres.

In 1997, the National Audubon Society began preparing an information package that selected several refuges from throughout the country that were most in need of Land and Water Conservation Fund monies in FY 1998. Wallkill River Refuge was chosen as one of the highlighted refuges. Refuge Manager (RM) Herland prepared a two-page report following guidelines established by the National Audubon Society that was included in a report sent to Congress. Both the National Audubon Society and Senator Frank Lautenberg (D-NJ) requested \$3 million for the refuge. While this was not received, Congress did include a \$1 million appropriation for land acquisition in its FY 1998 budget. Another update was conducted by the National Audubon Society for the FY 1999 budget. In February 1998, RM Herland again provided information about the land acquisition needs of the refuge to Audubon.

Actions taken on specific properties include:

*Tract 7 (Vernon Township):* This parcel of town-owned land was the subject of a possible no-cost transfer to the Service as compensation for construction work illegally conducted on Green Acres-purchased township property. This parcel, which contains upland forests and forested wetlands, is not actively used by the town. In February 1997, Township Supervisor Richard Sheola indicated his support for transfer of the site to the Service. Unfortunately, Regional Solicitor Tony Conte determined that specific deed language that the State of New Jersey required was unacceptable to the Service.

Tract 23 (Van Althuis): In December 1998, RM Herland prepared a request to the RO to amend the refuge boundary with the inclusion of this 16-acre parcel. The property was later added by categorical exclusion. Located directly across from the new refuge office, this property contains a tributary to the Wallkill River, a small pond, and potential habitat for bog turtles.

Tract 29 (Trapani): RM Herland spoke with Mrs. Trapani on March 3, 1997 about the appraisal that was conducted on her property. Mrs. Trapani expressed her concern that the property had been significantly undervalued at \$29,000. She believed it was worth \$80,000 and indicated she would sell it to a private bidder rather than to the Service.

Tract 43 (Cosh): RM Herland continued to meet with the landowners to discuss the acquisition of their property and to keep them informed about the status of the acquisition. This property was acquired in December 1997.

Tract 47 (Paling): RM Herland provided information about this parcel to the Washington Office. It was subsequently purchased in August 1998 with MBCC funds.

Tract 55 (A. Myslinski): In late March 1997, RM Herland walked this property and answered Alice Myslinski's questions about a sale of the property to the Service. Realty Specialist Waldron worked with Ms. Myslinski and, as a condition of sale, she removed barn, lift, and other scrap materials from her property. This property was acquired in January 1998.

Tract 66 (L. Cosh): On February 24, 1998, RM Herland was contacted by Sally Zelhof, a daughter of Lillian Cosh who owned property within the refuge boundary. Mrs. Cosh had passed away and the family was interested in selling the property. RM Herland notified the Regional Office (RO) about the call and negotiations began with the owners.

Tract 71 (Wallkill Farms): RM Herland was contacted by John Schneider, an attorney from Milford, Pennsylvania who represents the Kean family, one of the owners of Wallkill Farms. This 371-acre tract contains about 1.25 miles of riverfront and extensive grasslands and forested wetlands. RM Herland walked the property with Mr. Schneider in October 1997 and the negotiation process for this property began shortly thereafter. This was the second time the family worked with the Service. The first time the property was appraised (in 1994), the offer was rejected.

Tract 75 (Friend): In October 1997, RM Herland was contacted by one of the owners of this property, Catherine Friend, who said intra-family disputes had been settled and they were willing to work with the Trust for Public Land and sell the property to the refuge. The property was appraised, but the sale fell through for a number of reasons, including resistance to having a hunt parking lot established at the current location Christmas tree parking lot.

Tract 76 (Hamming): RM Herland walked the northern section of the Hamming property with the owner, Ike Hamming, on May 31, 1997. The Hammings were interested in selling this parcel to

us if they decided not to enroll in the county farmland preservation program. This parcel is not intensively farmed. A later decision by the family to enroll their entire property in the farmland preservation program meant that the Service was not be able to acquire this property.

Tract 80 (Ebers): RM Herland discussed the possible sale of this property with Emil Conforth of Bootmark Realty. She, Realty Specialist Will Waldron, and Trust for Public Land representative Julie Enger walked the property in April 1997 and determined it was worth immediate attention.

Tract 85 (Kuperus): RM Herland worked with Realty Specialist and TPL's Julie Enger on this property in 1997. The owners wanted to subdivide the abandoned railroad bed from the remainder of the property. RM Herland walked the property with one of the owners on July 25, 1997. This subdivision was not ideal, but as it quickly became apparent that the owners would not sell the entire parcel, we agreed to the subdivision. Realty Specialist Waldron and BT Holcomb walked the west boundary with the surveyor on September 29, 1998 and noted problems with the boundary. Nevertheless, the property was acquired as the acquisition protects extensive river frontage along both the Wallkill River and Papakating Creek. Its floodplain wet meadows provide breeding habitat for one of the largest bobolink populations on the refuge. This tract was renumbered 15j after it was purchased.

Tract 91 (Bicsak): On March 27, 1997, RM Herland walked this property to determine where an entrance drive could be placed to ensure subdivision requested by the family did not result in a landlocked parcel. The majority of this property was purchased in September 1997. On January 20, 1998, RM Herland attended a Wantage Planning Board meeting about the subdivision of 7 acres of drier land along Rt. 23 from the remainder of the parcel. The Bicsaks want to sell this separately as it is zoned commercial. The planning board expressed concerns about access to the remaining landlocked property, and would not approve the subdivision without further information.

Tract 94 (Chase): In December 1998, RM Herland prepared a request to the RO to amend the refuge boundary to allow the inclusion of a 1-acre corner parcel on Scenic Lakes Road and Rt. 565. This property contains a tributary to the Wallkill River and provides improved access to adjacent refuge lands. The property was later added by categorical exclusion.

Tract 110 (Hannan-Wilson): RM Herland conducted a Level 1 contaminants survey on this property on November 13, 1997. This property was acquired in June 1998.

Tract 120 (Wesloske): RM Herland had several discussion with Josephine Wesloske during the summer and fall of 1998 about the sale of her house and land to the refuge. We were concerned that Mt. Bethel Humus Co. owners would make a more lucrative offer for her 10 acres of black dirt. Ultimately, however, she agreed to sell to the refuge after learning about our relocation program.

Tract 136 (Appel): RM Herland provided periodic updates to the Appels about the status of



efforts to modify the refuge acquisition boundary to allow purchase of this property at a later date. This property was added to the refuge boundary by categorical exclusion in November 1998.

Tract 137 (Egan): RM Herland provided periodic updates to the Egans about the status of efforts to modify the refuge acquisition boundary to allow purchase of this property at a later date. This property was added to the refuge boundary by categorical exclusion in November 1998.

Clyne: This small yellow house on 0.42 acres on State Line Road in Minisink, NY became available for sale in September 1997. RM Herland visited the property with the listing agent because the property has potential to be converted to a parking facility for Oil City Road canoe and fishing access. This property was added to the refuge boundary through categorical exclusion in November 1998 but no tract number was assigned. The property was then purchased by a private buyer before the Service had an opportunity to make an offer.

McKirk Group: After learning that the owners of this property had an interest in selling the land to the refuge, RM Herland and Volunteer Dennis Miranda conducted a field visit to this property on September 23, 1998. The presence of an Atlantic white cedar swamp on the property was already known by local birders. The visit was conducted in part to determine the location of the swamp, but also its health. Not only were Atlantic white cedars found, but also very healthy populations of red spruce. This parcel became a priority for acquisition as a result of the information gathered during this site visit. A second visit with Dr. Eric Karlin from Ramapo College on October 12, 1998 revealed the presence of pitcher plants, sphagnum, rhododendron, and swamp azalea. This property was not part of the existing boundary. In December 1998, RM Herland prepared a request to the RO to amend the refuge boundary. The property was later added by categorical exclusion.

Louis Myslinski: RM Herland answered many questions from Louis Myslinski about the sale of his property to the Service. An appraisal was conducted and Mr. Myslinski was offered life-rights to his property in 1998. The appraisal included an additional 2.4-acre buildable lot adjacent to Mr. Myslinski's home. In December 1998, RM Herland prepared a request to the RO to amend the boundary by adding this additional lot, which was then added to the refuge boundary by categorical exclusion.

Hans Rosvold: RM Herland was contacted by Elsa Grotenfendt in October 1997 about property owned by her brother on Bassetts Bridge Road in Vernon, NJ. This is a forested lot with a small clearing next to one of our hunter parking lots. It has development potential. After learning more about the property, in December 1998, RM Herland prepared a request to the RO to amend the refuge boundary. The property was later added by categorical exclusion.

Edith Whyte: In the course of discussions with representatives from the McKirk Group, the refuge was offered the opportunity to acquire an adjacent 10-acre wooded parcel on Lake Pochung Road. In December 1998, RM Herland prepared a request to the RO to amend the refuge boundary. The property was later added by categorical exclusion.

# Land Acquisition Status through 1998

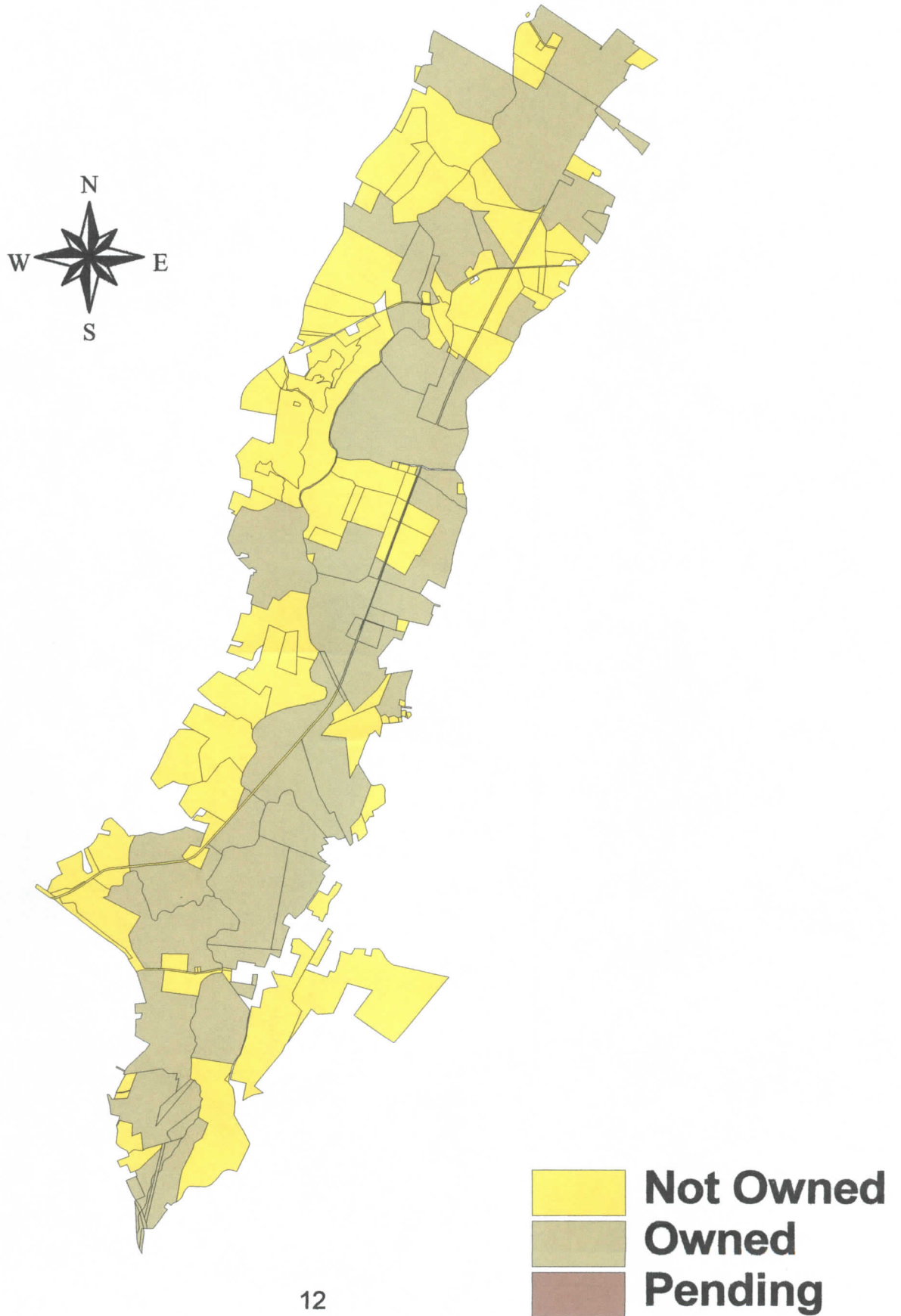


TABLE 4. PROPERTIES ACQUIRED AS OF DECEMBER 31, 1998					
DATE OF CLOSING	TRACT # (former #)	ACREAGE	TOWNSHIP AND STATE	BLOCK AND LOT	LANDOWNER
1-16-1992	79, -a	156.2	Wantage, NJ	Block 2 Lots 21.05, 25	Meadowview Farms/E. Nowicki
2-27-1992	69	30.7	Wantage, NJ	Block 2 Lot 1A	NJ Conservation Foundation
4-24-1992	51	104.7	Vernon, NJ	Block 10 Lot 7	West Valley Sports Club
7-01-1992	22	112.0	Hardyston, NJ	Block 2 Lots 6, 7	L. Mack
7-10-1992	15a (27)	29.3	Vernon, NJ	Block 170 Lot 12.05	TPL (W. Wesolowski)
8-13-1992	15b (63)	73.4	Wantage, NJ	Block 1.02 Lot 10.01	TPL (C. Quinn)
9-2-1992	22a	32.6	Vernon, NJ	Block 220 Lot 16	L. Mack
10-27-1992	46	290.4	Vernon, NJ	Block 70, Lot 8 Block 120 Lots 1, 2, 3, 4, 5	Meadow Park/ B. Montalbano
11-12-1992	32, -a	120.0	Vernon, NJ	Block 170 Lot 6	M. Warwick/ M. Imperatore
11-12-1992	64	51.3	Wantage, NJ	Block 1.02 Lot 19.01	A. Hovey
12-7-1992	15 (48)	86.1	Vernon, NJ	Block 70 Lots 4, 5, 6	TPL (R. Cline)
2-10-1993	15c, R (31)	135.85	Vernon, NJ	Block 170 Lots 1, 3.02	TPL (C. Friend)
11-10-1993	86, -a, -I,R	175.3	Wantage, NJ	Block 7 Lots 3, 7.01	L. Charney
12-13-1993	74, R, R-1	176.4	Wantage, NJ	Block 2 Lots 12.01, 13.01	D. Parrott
4-15-1994	52	349.5	Vernon, NJ	Block 10 Lots 1, 2, 3, 5, 12, 23, 26.01	Kenco Land/ Liberty Sod Farm
4-15-1994	52a	147.1	Warwick, NY		Kenco Land/ Liberty Sod Farm

<b>TABLE 4. PROPERTIES ACQUIRED AS OF DECEMBER 31, 1998</b>					
6-21-1994	57, -I, -II	147.84	Wantage, NJ	Block 1.02 Lot 3.01	D. Lott
10-13-1994	24	119.06	Vernon, NJ	Block 170 Lot 33	Franklin Associates
10-13-1994	113 (24)	130.69	Vernon, NJ	Block 174.02 Lot 32.03	Urban Atlantic Vernon
1-19-1995	114 (24)	110.59	Vernon, NJ	Block 174.03 Lot 32.02	Franklin Associates Vernon I
1-19-1995	115 (24)	69.98	Vernon, NJ	Block 174.01 Lot 32.01	JLS.LP (Franklin Associates)
11-15-1995	34	13.6	Vernon, NJ	Block 170 Lot 4	M. Brown
11-15-1995	30, -a	6.39	Vernon, NJ	Block 170 Lot 33.01	A. Fischer
12-8-1995	33, -a	24.97	Vernon, NJ	Block 170 Lots 2, 3.01, 5	M. Belcher
2-7-1996	36	82.79	Vernon, NJ	Block 170 Lot 19	T. Murray
9-27-1996	87	10.3	Wantage, NJ	Block 7 Lot 4	G. Richelshager
9-27-1996	88	121.03	Wantage, NJ	Block 7 Lot 2	Willson Estate
12-20-1996	118	29.7	Vernon, NJ	Block 71 Lots 9, 9.01	M. Van Vliet
2-21-1997	15d	75	Vernon, NJ	Block 170 Lots 11, 12	TPL (Van Althuis)
2-21-1997	15e	187.2	Vernon, NJ	Block 220 Lots 13, 15	TPL (Van Althuis)
2-21-1997	15f (23b)	50.1	Wantage, NJ	Block 2 Lot 24	TPL (Van Althuis)
2-21-1997	15g (23a)	2.4	Wantage, NJ	Block 2 Lot 23	TPL (Van Althuis)
4-22-1997	56	11.77	Vernon, NJ	Block 10 Lot 8	F. Dennis
9-9-1997	119	2.73	Wantage, NJ	part of Block 7 Lot 1	E. Bicsak



TABLE 4. PROPERTIES ACQUIRED AS OF DECEMBER 31, 1998					
9-9-1997	119	4.01	Hardyston, NJ	Block 2 Lot 2	E. Bicsak
9-9-1997	91	18.2	Wantage, NJ	part of Block 7 Lot 1A	P. Bicsak Estate
9-9-1997	91a	4.9	Wantage, NJ	Block 7 Lot 1A Block 8 Lot 2A	P. Bicsak Estate
9-9-1997	91a	65	Hardyston, NJ	Block 2 Lot 1, 3.01	P. Bicsak Estate
9-9-1997	91b	2.8	Hardyston, NJ	Block 2 Lot 1 Block 4 Lot 3.01	P. Bicsak Estate
9-9-1997	91c	3.3	Hardyston, NJ	Block 2 Lot 1 Block 4 Lot 3.01	P. Bicsak Estate
9-25-1997	94a	8.48	Vernon, NJ	Block 267 Lot 1	R. Chase
12-23-1997	43, -a	123.34	Vernon, NJ	Block 120 Lots 12, 17	J. Cosh
1-7-1998	55, -a	96.82	Vernon, NJ	Block 10 Lot 22	A. Myslinski
6-9-1998	15h (110)	16.7	Vernon, NJ	Block 10 Lot 27	TPL (H. Wilson)
8-20-98	47, -a	83.58	Vernon, NJ	Block 70 Lot 7,9	M. Paling
9-30-1998	15j (85)	186.65	Wantage, NJ	Block 2 Lot 51.03	TPL (M. Kuperus)
TOTAL ACREAGE: 3,880.78					

2. Easements (Nothing to Report)

3. Other

RM Herland delivered revenue sharing checks to the town managers in Vernon, Wantage, and Hardyston Townships, New Jersey, and Warwick, New York in April and May 1997 for lands owned in 1996, and in June 1998 for lands owned in 1997. Payment amounts are provided below:

<b>TABLE 5. SHARED REVENUE PAYMENTS</b>					
	<b>Vernon, New Jersey</b>	<b>Wantage, New Jersey</b>	<b>Hardyston, New Jersey</b>	<b>Warwick, New York</b>	<b>All towns</b>
<b>Year</b>					
<b>1993</b>	\$5,755	\$6,596	\$1,109		\$13,460
<b>1994</b>	\$11,907	\$6,699	\$1,058		\$19,664
<b>1995</b>	\$15,407	\$18,143	\$1,047	\$1,370	\$35,967
<b>1996</b>	\$27,939	\$15,461	\$892	\$1,168	\$45,460
<b>1997</b>	\$31,785	\$18,149	\$984	\$1,288	\$52,206
<b>1998</b>	\$31,428	\$13,805	\$1,647	\$1,881	\$48,761
<b>Total</b>	\$124,221	\$78,853	\$6,737	\$5,707	\$215,518

Efforts continued in 1997 and 1998 to acquire the former Galeville Army Training Site as a new national wildlife refuge. On January 16, 1997, RM Herland, Assistant Regional Director Tony Léger, and Realty Land Acquisition Team Leader Walt Quist met with Congressman Maurice Hinchey (D-NY) and representatives from the National Park Service (NPS), the General Services Administration, the West Point Military Academy, and the Town of Shawangunk to discuss issues related to the use and disposition of the Galeville Army Training Site. Several additional meetings took place with these parties over the next two years. This site, which has a history of use by local folks for model airplanes, car shows, and dog walking, also has been nominated as an Important Bird Area and is home to 24 species of migratory birds that fall under special management categories. During the course of this reporting period, refuge staff worked closely with these agencies to try to accommodate the needs of the Town while protecting the natural resource values that make this site significant. There was also a significant amount of interaction with local and national conservation organizations and several meetings with Congressman Hinchey or his staff.

#### D. PLANNING

##### 1. Master Plan

The kick-off for the refuge comprehensive conservation plan (CCP) began on September 28, 1998 when Planner Nancy McGarigal from the RO came to the refuge for an orientation.

As part of the CCP process, Clay Stern and Dan Russell of the New Jersey Field Office (NJFO) visited the refuge on November 19, 1998 to learn more about the area and potential contaminants issues. Mr. Stern will be preparing a Contaminants Assessment Plan for the refuge.

## 2. Management Plan

A revised hunting plan was developed and approved in 1997 to expand the refuge hunt program to wild turkey and migratory bird (except crow).

A sport fishing plan was developed and approved in 1997 to open the refuge for sport fishing.

A trapping plan was developed and approved in 1997 to allow beaver and muskrat trapping in the vicinity of the former Liberty Sod Farm. Trapping would be conducted in this limited area for nuisance control purposes only.

## 3. Public Participation

The public was given the opportunity to provide comments on two environmental assessments in 1997: the wetland and grassland enhancement project at the former Liberty Sod Farm and the refuge visitor services plan. A proposed rule for opening the refuge to increased hunting was published in the Federal Register and was available for public review and comment.

## 4. Compliance with Environmental and Cultural Resource Mandates

A revised draft Environmental Assessment (EA) for wetland and grassland enhancement on the former Liberty Sod Farm was completed in January 1997 by ROS Robichaud. The document described the purpose, proposed alternatives, and environmental consequences of the habitat enhancement project in detail. It was available for public comment beginning February 3, 1997 and was sent to all local libraries, towns, relevant agencies, and interested individuals. The final EA, environmental action memorandum, and Finding of No Significant Impact were completed in September 1997.

A draft Environmental Assessment for the proposed visitor use program on the refuge was developed by RM Herland, with assistance from Regional Visitor Use Specialist Tom Comish and Assistant South Zone Biologist Wennona Brown, during the winter of 1997. Mr. Comish and Ms. Brown also helped prepare compatibility determinations, funding analyses, and a proposed rule for opening the refuge to increased public use. The draft EA was released on March 21, 1997. The final EA was sent to the RO for signature on November 17, 1997. Based on public comments and the 1997 National Wildlife Refuge System Improvement Act, the proposed alternative was modified to open the refuge to all New Jersey hunt seasons and to trapping in both New Jersey and New York. We also did not identify the exact location of trails, canoe access and parking lots, in order to give the manager more flexibility in the siting of facilities.

Intra-Service Section 7 Consultations for the draft visitor services program were prepared by RM Herland and sent on February 10, 1997 to the NJFO and the New York Field Office (NYFO) for their review, comment, and concurrence.

Permission to remove the carriage barn located on tract 15d, the former Dagmar Dale Farm, was

requested of and received from Refuge Supervisor for Refuges and Wildlife (Central), after being informed by Regional Archeologist John Wilson that the building was not historic. The building was structurally compromised and needed to be removed as it constituted a safety hazard.

In July 1998, ROS Shryer coordinated with Regional Archeologist John Wilson to ensure we received cultural resource clearance for the wetland restoration project at Bassetts Bridge. Approval was granted for work in drained wetlands only, not uplands.

Dr. Janet Pollack from William Paterson University met with ROS Shryer on December 1, 1998 to conduct a site investigation of part of the refuge known as "Myslinski Island". This is a limestone ridge located on tracts 55 and 52. She expressed her opinion that the site qualified for natural heritage designation. Information she provided was forwarded to Regional Archeologist John Wilson.

## 5. Research and Investigations

### Wallkill River NW95 - "The Selection of Nesting and Foraging Habitats by Grassland Birds on the Wallkill River National Wildlife Refuge" (14-45-0009-1575 #37)

Initiated in 1995 by refuge cooperative education student Lamar Gore, the objectives of this study were to identify and map key grassland sites for nesting and foraging birds and to determine habitat characteristics useful in the restoration of grassland sites on the refuge. In 1995, Biological Student Trainee Gore located, mapped, and observed thirteen study sites. This was later increased to 14 sites. The project was completed in 1997, working under the guidance of Dr. Becky Field of the Massachusetts Cooperative Fish and Wildlife Research Unit located at the University of Massachusetts. A final report was submitted to the refuge in October 1998.

### Wallkill River NW95 - "Evaluation of Contaminants in Water, Sediments, and Fish of the Wallkill River National Wildlife Refuge", USFWS, NJFO

The background contaminants study was conducted to characterize contaminant concentrations in the refuge and to assess the significance of their presence to refuge management. This effort entailed the collection of sediments, water and fish for chemical analyses and the performance of multiple toxicity tests on bulk sediment, sediment pore water, and surface water. Specifically addressed were the extent of trace metals, chlorinated pesticides, polychlorinated biphenyls, polynuclear aromatic hydrocarbons (PAHs) and volatile organic compounds. Samples were collected by NJFO contaminants specialist Dr. Katie Zeeman from 8 locations on both the Wallkill River and Papakating Creek. Samples were shipped to the Patuxent Analytical Control Facility for processing. The final report was delivered to the refuge in October 1997.

Findings included the following: nine metals were present at measurable levels in surface water, but not at concentrations exceeding ambient water quality criteria developed by the U.S. Environmental Protection Agency to protect against acute toxicity in freshwater biota. Only metals and PAHs were detected in sediments. With the exception of zinc and manganese, trace



metal concentrations were considered low and representative of background concentrations for sediments in the area. Sediment PAH levels were not considered sufficient to pose threats to most species of directly exposed benthic organisms. Zinc and manganese concentrations in sediment were considered sufficient to expect toxicity at all locations if toxicity is additive. Whole body contaminant concentrations in Wallkill River fish were considered to be too low to expect adverse effects in the fish or to pose significant risk of adverse effects for potential predators. Observed PCB concentrations were considered to be low.

“An Investigation of the Behavioral Ecology and Population Dynamics of Secondary Cavity-Nesting Birds in New Jersey”, Dr. John Smallwood, Montclair State University

The refuge was one of several locations in Sussex County where Dr. John Smallwood of Montclair State University erected nest boxes to determine breeding activity by kestrels and other secondary cavity-nesting species. Short-term (single season) research goals included (1) a comparison of habitat characteristics surrounding nest boxes that were occupied by kestrels, versus those of nest boxes which were not occupied; (2) a survey of invertebrate fauna that co-inhabit nest boxes during kestrel breeding attempts; and (3) an analysis of the geographic variation in the juvenal plumage characteristics of nestlings across the species North American range. Long-term research goals included (1) kestrel population responses to increased availability of nest sites; (2) nest site fidelity of kestrels breeding in nest boxes; (3) the mechanism by which yearling kestrels are incorporated into the breeding population, and (4) lifetime reproductive success of individuals in a marked population of kestrels. This research began in 1997 and continued in 1998.



Kestrel chick about to be banded by Dr. John Smallwood. *L.Herland 8/97*

The boxes were placed on telephone poles in areas on and around the refuge that are both adjacent to large expanses of grasslands and are easily accessible for monitoring and maintenance activities. The research was conducted by Dr. Smallwood and his students.

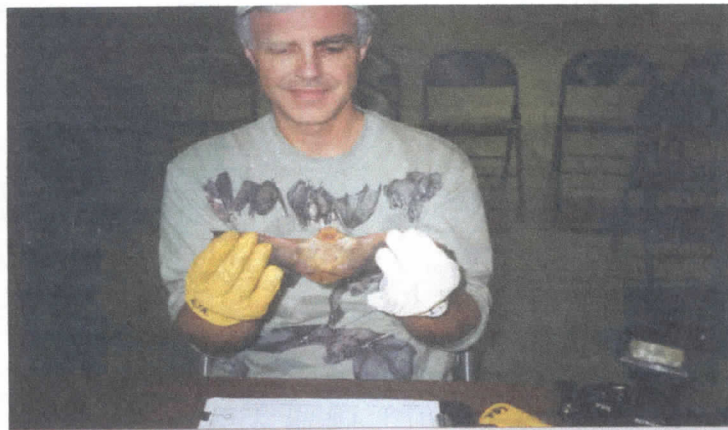
Twenty-nine nest boxes were available in 1997. At these, 46 breeding attempts occurred, of which 4 were American kestrels. Nine chicks fledged from three nests (WK08, WK15, and

WK22). The failed nesting attempt was at WK22, which later had a successful brood. The most common nesting bird in the boxes was the European starling. These eggs were evicted from the nests.

There were 28 boxes available in 1998. At these boxes, 34 breeding attempts occurred. American kestrels nested at boxes WK07, WK08, WK09, WK11, WK12, WK21, WK22, WK26, and WK30 with a total of 13 chicks fledged. Unfortunately, box WK26 fell down with five eggs in it. Nest failures occurred at boxes WK07 and WK21.

“Foraging Ecology of Bats in Northern New Jersey”, Dr. Lance Risley, William Patterson University

Timing, duration, and intensity of foraging by insectivorous bats was measured at 11 sites in Passaic and Sussex Counties during July and August 1998, including the refuge. Bats were captured with mist nets and high-frequency bat vocalizations were monitored using a bat detector. During 41 hours of netting over the course of 14 nights, 27 bats were captured. Three species were represented: little brown bat (*Myotis lucifugus*), 15 of 27; big brown bat (*Eptesicus fuscus*) 11 of 27; and red bat (*Lasiurus borealis*), 1 of 27. Foraging activity of bats, measured with a bat detector, was highest shortly after sunset and lowest around midnight. Insect prey selection by bats, visually estimated from analysis of fecal pellets, confirmed that little brown bats fed primarily on small, soft-bodied insects while big brown bats fed primarily on larger insects including beetles.



Dr. Lance Risley holds a red bat captured at 119 Owens Station Road. K. Holcomb 7/98

## 6. Other

In August 1997, Acting Director Jay Gerst approved a Preliminary Project Proposal for the protection of Federally-listed threatened and endangered species habitat throughout the Hudson River/New York Bight ecosystem. This would allow the acquisition of up to 10,000 acres of land by the Service, primarily for the protection of bog turtles and Karner blue butterfly. The focus areas for the bog turtle was the Wallkill River/Paulins Kill watershed in northwestern New Jersey



and the Harlem Valley/Taconic Ridge and Valley area in New York, Connecticut, and Massachusetts.

Implementation of this project became a major focus of the ecosystem team and the refuge, and formed the basis for consideration about refuge expansion in the CCP. The first meeting about this possible expansion took place in the RO on December 4, 1997. It was attended by RM Herland and Southern New England New York Bight Coastal Ecosystem Program office biologist Andrew Milliken, who had collected most of the biological data that served as the basis for the proposed expansion.

RM Herland was part of a team that, working under the guidance of External Affairs Specialist Kathy Zeamer, planned and held a pilot Congressional Forum in Morristown, New Jersey on April 9, 1998. Representatives from all New Jersey field stations met with district staff from districts throughout the state to educate them about the Service, our mission, the Service offices within the state, and major issues of interest.

RM Herland continued her outreach in the community and the gathering of support for both the Wallkill River and ecotourism.

#### E. ADMINISTRATION

##### 1. Personnel



(L - R) BT Holcomb, MW Mitchell, OA Stephenson, RM Herland, ROS Shryer  
*B. Sisco 7/98*



<b>TABLE 6. REFUGE STAFFING</b>				
<b>EMPLOYEE</b>	<b>POSITION</b>	<b>GRADE</b>	<b>ENTER/ DEPART DATE</b>	<b>STATUS</b>
Elizabeth A. Herland	Refuge Manager	GS-12	1/22/1995 EOD	PFT
Renee Robichaud	Refuge Operations Specialist	GS-9	8/1/1997 DD	PFT
Jeff Shryer	Refuge Operations Specialist	GS-11	3/5/1998 EOD	PFT
Kevin S. Holcomb	Biological Technician	GS-5	8/31/1997 EOD	PFT
Fran Stephenson	Office Assistant	GS-6	4/27/1997 EOD	PFT
Lamar Gore	Biological Student Trainee	GS-5	8/15/1997 DD	PFT
Terry Mitchell	Maintenance Worker	WG-8	7/12/1998 DD	PFT

RM Herland was promoted to a GS-13 on June 7, 1998. This was part of a regional effort to bring refuge managers up to a minimum level of GS-13.

1997 brought big personnel changes to the refuge. ROS Robichaud accepted a position as Outdoor Recreation Planner in Yuma, Arizona on the Imperial NWR. Renee left this station on August 1, 1997. Biological Student Trainee Lamar Gore completed his program in August 1997 and returned to graduate school. And, Terry Mitchell transferred to Blackwater NWR in July of 1998.

However, two new employees joined the refuge family in 1997. The refuge's fourth full-time employee, Fran Stephenson, was hired to fill the vacancy created by Julie Reid in 1995. Fran was a local resident and after a short time volunteering at the refuge was hired as office assistant. Kevin Holcomb was hired in August 1997 to become Wallkill River's first Biological Technician and its fifth employee. Kevin was hired from the New Jersey Division of Fish, Game and Wildlife (NJFGW) but had worked previously as a volunteer at Montezuma NWR.

OA Stephenson was accreted from a GS-5 to a GS-6 on August 25, 1998. This was part of a regional effort to standardize administrative staff responsibilities and grades.

The growth of the refuge staff is reflected in the Table 7:

TABLE 7. FIVE YEAR COMPARISON OF REFUGE STAFFING			
CALENDAR YEAR	PERMANENT FULL-TIME	TEMPORARY	TOTAL FTE USED
1994	3	0	2.53
1995	4	0	2.92
1996	4	0	2.70
1997	5	0	4.22
1998	5	0	4.25

## 2. Youth Programs

In 1997, the refuge was approached by Terry Paicer of the Boy Scouts of America Morris-Sussex Area Council about the possibility of establishing an Explorer post on the refuge. With the addition of BT Holcomb to the staff, the refuge was able to sponsor Conservation Post 19. The first presentation to the fledging post was made by BT Holcomb on November 29, 1997. The post was very active and not only learned about conservation, they also engaged in activities that directly benefitted the refuge, such as clean-ups and representation at public events.

## 3. Other Manpower Programs

From April to August 1997, the refuge participated in a Project Self-Sufficiency program by hiring Jesse Halloran to assist with general maintenance. The purpose of this program is to give women job skills in the work environment.

The refuge began a very lucrative partnership with the Sussex County Probation Office in the spring of 1997, when it accepted placement of individuals who were required to perform community service by the local court. The first person to complete community service did so in May 1997. He worked 50 hours on clearing vegetation from the future Wood Duck Nature Trail. In 1997, 136 hours were worked by individuals completing community service; in 1998, individuals completed 2,207 hours of community service on the refuge.

In December 1998, RM Herland initiated negotiations with the Sussex County Association of Retarded Citizens and NISH for the provision of janitorial services at the new refuge office.

#### 4. Volunteer Program

SCA Resource Assistant Dan Schaeffer, a student at Pennsylvania State College, began his volunteer work at the refuge on May 27, 1997. Tami Denette was hired by the University of Massachusetts to provide field assistance to BST Gore on the grassland bird research project in 1997. Also that year, local resident Rob Auermueller volunteered many hours to gain experience for future employment.



(L-R) Lamar Gore, Dan Schaeffer, Rob Auermueller, ROS Renee Robichaud, Tami Denette, unknown volunteer *FWS 8/97*

Sumner Gray served as the refuge's SCA Resource Assistant in 1998, beginning on May 13. Also in 1998, the refuge began a new student intern relationship with the State University of New York at Cobleskill. Chris Pray came to the refuge on June 1, 1998 as that school's first intern. Andrew Block, another SUNY- Cobleskill student, also began volunteering that same day.

Including the contributions of the community service program noted above, the refuge had a total of 53 volunteers in 1997 who contributed 1,736 hours (the equivalent of 217 days) to the refuge. In 1998, the number of volunteer hours jumped significantly with the renovation of the Dagmar Dale Farmhouse, establishment of the Liberty Loop Trail, and student interns. A total of 3,891 hours were donated by refuge volunteers in 1998. This is equivalent to 486 days, which is just shy of almost 2 full-time employees!

## 5. Funding

<b>TABLE 8. FIVE YEAR COMPARISON OF REFUGE FUNDING</b> (in thousands of dollars)					
<b>FUNDING CATEGORY</b>	<b>FY 1994</b>	<b>FY 1995</b>	<b>FY 1996</b>	<b>FY 1997</b>	<b>FY 1998</b>
<b>Minimum level (1261)</b>	107.3	162.9	176.7	239.7	379.3
<b>Other operations (1261)</b>	6.0	4.9	44.5	5.1	0
<b>Base Maintenance (1262)</b>	21.0	21.0	21.0	27.2	23.5
<b>Other Maintenance (1262)</b>	5.5	20.0	0	50.0	579.5
<b>Other/Special Funding</b>	0.8	47.3	0.75	6.25	9.5
<b>TOTAL</b>	140.6	256.1	243.0	328.25	991.3

Minimum level is defined as salaries, utilities, service contracts, motor fuel, training, travel, awards, and supplies. Base maintenance is defined as funds used to repair or replace items of a routine or on-going nature, such as automobile maintenance.

FY 1997 funds provided \$50,000 for the rehabilitation of the Dagmar Dale Farmhouse for use as a refuge headquarters. These funds were used for some rehabilitation. However, once it was determined that additional funds would be needed to renovate the farmhouse, the majority of the funds were dedicated to renovating the creamery into a refuge shop. These funds were provided in FY 1998.

## 6. Safety

No reportable injuries occurred in 1997 or 1998.

On July 30, 1997, Jesse Halloran, a participant in a vocational training program sponsored by Project Self-Sufficiency, reported a tick bite on her leg and a second bite on her buttocks. She did not develop Lyme Disease.

ROS Jeff Shryer, was designated as collateral duty safety officer in April 1998. That month, he also updated the refuge safety plan.

A refuge environmental compliance audit was conducted by Ed Kaiser and Richard Yee of the Regional Engineering Office and Charlie Fasano of the Denver Engineering Office on May 18, 1998. Some of the violations noted for correction were lack of consistent water quality sampling in refuge residences, lack of regular septic pump-outs, inadequate storage of flammable materials, insufficient testing of buildings for the presence of lead based paint, insufficient radon testing in refuge quarters, and solid waste at former sod farm and other refuge locations. As a result of

funding provided by the RO, all these items were resolved. Over 150 tires were removed from the refuge and an abandoned trailer was removed from the refuge.

A safety survey was conducted on August 25, 1998. Problems identified and corrected included some minor electrical work, the need for an annual audiometric testing and training program, new seat on the JD2520 tractor, replacement of a chute deflector on a riding lawn mower, and an anti-kick back assembly for the radial saw.

A hearing conservation program was started at the refuge in December 1998 and staff certified that they read and understood the Region 5 Hearing Conservation Program.

## 7. Technical Assistance

Throughout 1997 and 1998, the issue of the water quality designation of the Wallkill River was again a hot topic in the news and within the Service. An on-going concern of the Service has been the degradation of Wallkill River quality as a result of increased growth in the watershed. The Service's position on water quality, as expressed by the NJFO, was to support a Category 1 designation for the river. This would result in no further degradation of water quality in the river. The New Jersey Department of Environmental Protection rejected this position and instead offered to establish a watershed management planning process. Various scopes of work were reviewed and comments provided to the NJFO, who then prepared official Service comments. RM Herland had many conversations with both the NJFO and members of organizations such as the Sierra Club and the Vernon Civic Association who were strongly advocating for a Category 1 designation. In December 1998 there were numerous newspaper articles about this very contentious issue.

RM Herland was part of a special committee that met several times in 1997 and made recommendations for changes and improvements to the Student Career Experience Program.

RM Herland provided comments to the New Jersey Department of Environmental Protection about the Mt. Bethel clay removal permit and their required mitigation on February 18, 1998.

## 8. Other

TABLE 9. SPECIAL USE PERMITS ISSUED DURING 1997/1998			
Dates	Permittee	Use	Site
3/15/97 - 11/30/97	Wade & Sharon Wander	butterfly census	entire refuge
3/1/97 - 6/1/97	Edward Van Althuis	renting apartment	tract 23
3/8/97 - 12/31/99	Dr. John A. Smallwood	kestrel nest box research	entire refuge
4/25/97 - 10/15/97	Sussex Co. Mosquito Control	mosquito treatment	see stipulations

8/4/97 - 10/31/97	Robert Wetterau	mow and brush hog	various tracts
10/2/97 - 12/30/99	Sussex Rural Electric Co-op	install transmission line	tract 22
10/20/97 - 10/31/97	Barrie & Barbara Beaver	scout for trapping	units 1 & 2
11/29/97 - 4/5/98	John Castrovilari	muskrat trapping	tracts 51 & 51a
11/29/97 - 3/15/98	Richard H. Webber	muskrat trapping	tract 51
4/21/98 - 10/31/98	Sussex Co. Mosquito Control	mosquito treatment	see stipulations
5/22/98 - 12/31/98	Dr. Lance S. Risley	bat research	entire refuge
8/1/98 - 9/30/99	John Cosh	mow & brush hog	tract 43
8/1/98 - 2/28/99	Bob Wetterau	mow & brush hog	15d, 15e, 79, 15f, 86
11/28/98 - 3/15/99	Richard H. Webber	muskrat trapping	tract 51
11/28/98 - 4/4/99	Margaret A. Johnson	muskrat trapping	tracts 51 & 51a

## F. HABITAT MANAGEMENT

### 1. General

Wetland restoration and grassland restoration projects were completed for the first time on the refuge by staff in 1998. These are described in more detail below.

### 2. Wetlands

Refuge staff completed the first wetland restoration project on the refuge when, in 1998, four acres of Wallkill River floodplain adjacent to Bassetts Bridge was excavated to impound spring flood water in a series of potholes. The original riparian forest had been cleared by former owners for agriculture and the site was dominated by reed canary grass when acquired by the refuge. This project was undertaken to help restore the floodplain hydrology and, in doing so, provide seasonal habitat for waterfowl and wading birds during spring and fall migrations. ROS Shryer did most of the planning and coordination of this effort.





Kevin Holcomb operating the bulldozer. *FWS 8/98*

BT Holcomb operated a rental JD-550 bulldozer and a contractor operated a D-4 bulldozer to complete the excavation work. The dense grass root mass significantly slowed stripping time. The deepest pothole was approximately 4 feet below grade. The water table and clay deposits prevented deeper excavation. Excavation was done in August when soils conditions were anticipated to be their driest. The excavated area was seeded with 50 pounds of Japanese millet and 100 pounds of annual wild rye to stabilize slopes and improve site appearance. Bulldozer use totaled 108 hours consuming 160 gallons of fuel. Total project cost was approximately \$5,700.00.

ROS Shryer also coordinated work on the moist soil management units at the former Liberty Sod Farm, which were reconfigured in 1998 to improve water manipulation. A Ducks Unlimited engineer redesigned the existing design to permit more efficient water movement into proposed and existing impoundments. Two bulldozers were used to excavate a water distribution channel and clear an access route from the Wallkill River to a collection sump site adjacent to the Liberty Loop Trail. Equipment Operator Bob Carpenter of the Eastern Shore of Virginia NWR operated one of the dozers. The dozers were operated between September 9 and 18 for a total of 101 hours at a total rental cost of \$5,595. Bulldozer fuel cost \$81. The distribution channel could not be completed because of clay deposits and a high water table. Both dozers got stuck and had to be extricated by tow truck. Because the project was not completed, the National Fish and Wildlife Foundation Grant was extended through 1999.

On November 9, 1998, ROS Shryer confirmed with New York Department of Environmental Conservation (NYDEC) analyst Larry Wilson that a water diversion permit was not required to take water from the Wallkill River if there is no disturbance to the riverbank and the pumping does not result in a visible drop in water level. This is important since management of the



northern moist soil impoundment units in the fall may require pumping from the river if natural rainfall is not sufficient to fill the units for fall migration. For two days in early December 1998, water was pumped from the river into the impoundment north of Oil City Road. The test showed that the dikes would hold water but it would be expensive to operate the tractor and run the pump long enough to achieve water management goals.

Leigh Frederickson and several RO biologists visited the sod farm on November 18, 1997 and once again evaluated the plant response at the enhancement project site. They looked at changes in the vegetative response from the past two years and discussed future management actions at the site.

Carl Schwartz, NYFO Private Lands Coordinator, visited the refuge on November 17, 1997 and visited tracts 43 and 55 with RM Herland and BT Holcomb. He suggested pothole development on tract 43. On tract 55, he suggested we feather out the back of the ponds, which are former clay pits, and plug a ditch on the back of the property.

### 3. Forests (Nothing to Report)

### 4. Croplands

In 1998, one cooperator farmed 50 acres of corn on uplands surrounding the former Dagmar Dale farm house. These were lands that had previously been in corn production. Five percent of the corn crop was left on the ground for wildlife.

### 5. Grasslands

In 1998, refuge staff mowed 200 acres of refuge grasslands. In April 1998, ROS Shryer, BT Holcomb and MW Mitchell completed our pilot grassland restoration project. With advice and assistance from NYFO Partners for Wildlife Coordinator Carl Schwartz, seventeen acres of former cornfield, south of the new refuge headquarters site, were plowed and seeded to grasses. The conversion of cornfield into a warm season grassland will provide nesting habitat for migratory grassland dependent birds. The Rockaway Series soils at the site are gravelly loam on well drained slopes. The grassland mix consisted of 340 pounds of native grass seed and 5 pounds of wildflower seed mix. The grassland mix was seeded at 14 pounds pure live seed/acre and the wildflower seed mix was seeded at 0.3 pounds/acre.

A total of 46 staff days was used for this project. The field was plowed and disked by a cooperative farmer the second week of April and then the furrows were smoothed with a tire drag. A Truax seed drill was used to plant the seeds on April 17, 1998. The grassland was mowed completely June 11, June 26, and July 22 to reduce invasive broadleaf plant competition.

### 6. Other Habitats

For the week of June 23, 1997, RM Herland, SCA Resource Assistant Schaeffer and Volunteer

Auermuller traveled to Oxford, NY to assist NYFO Partners for Wildlife Coordinator Carl Schwartz with a streambank fencing project. One-half mile of fence was erected along Chenango Creek.

Raw sewage was discovered in Beaver Run on the refuge where the stream crosses the Wood Duck Nature Trail. The Sussex County Health Department conducted water quality sampling on July 2, 1998 and confirmed the presence of sewage. Further investigation determined that a sewage main from Sussex Borough bringing wastewater to the Upper Wallkill Wastewater Treatment Facility in Hardyston had broken. The spill did not appear to negatively impact wildlife.

#### 7. Grazing

In 1997 and 1998, twenty acres of refuge grassland on tract 15b adjoining the Havens Farm were grazed by his dairy cows. The use was calculated at 120 AUMs (animal unit months). Mr. Havens mowed multi-flora rose thickets encroaching on the grassland as part of his special use permit. ROS Shryer determined where fencing was needed to control cows on this parcel.

#### 8. Haying

The first special use permit for haying in the history of the refuge was granted to Robert Wetterau in August 1997. This was the first of several partnerships where local farmers helped the refuge achieve management goals by haying selected fields. In exchange for haying, Mr. Wetterau conducted brushhogging operations on tract 46, 51 and 74.

In 1998, the program was expanded to two farmers, who collectively mowed 100 acres of refuge grasslands in exchange for the hay and to control brush encroachment. Grasslands mowed include tracts 43, 15d, 15e, and 79. Brush control mowing was done in tracts 15f and 86. Additionally, refuge staff mowed 200 acres collectively in tracts 51, 52, 57, and 69 to maintain the grasslands.

In 1997, RM Herland began talking with Appalachian Trail Conference representatives about the haying of the field directly to the north of tract 57 through which the Appalachian Trail passes. This field is split by Service ownership and NPS ownership. On behalf of the NPS, we agreed to mow the field after ground nesting birds have fledged (no earlier than July 15 of each year). This field would be mowed either by refuge staff or by cooperative farmers. This agreement was finalized in May 1998.

#### 9. Fire Management

Dr. Bill Patterson from the University of Massachusetts and Allen Carter, Regional Fire Management Coordinator, visited the refuge on June 16, 1997 to determine the past and future role of fire in the ecology of the refuge's grasslands. Dr. Patterson found extensive charcoal at the 1 to 3 foot depth on tract 57, indicating that fire had played an extensive part in the area's ecology about 500 years ago.

## 10. Pest Control

On March 27, 1997, RM Herland met with Sussex County Mosquito Control Superintendent Scott Crans to develop specifications for the 1997 mosquito control program on the refuge. Mr. Crans was adamant that a ban on temephos (Abate) would cause serious problems. This larvicide has not been banned by the Service, but concerns about its use have been raised. The County prefers to use this in wet meadows with transient sheet water and wooded wetlands. Mr. Crans agreed to begin a monitoring program on the refuge and to consider preventative measures.

In 1997, 520 acres of refuge lands were treated with 1,560 pounds of Vectobac-CG (*Bacillus thuringiensis*) at a rate of 3 pounds per acre. The mosquito control applications were successful with a 70% - 75% mortality rate. Target mosquito species were *Aedes canadensis*, *Ae. vexans*, *Ae. sticticus*, *Anopheles quadrimaculatus*, *Anopheles punctipennis*, *Psorophora ferox*, and *Psorophora columbiae*. In 1998, an estimated 1,175 acres of refuge lands were treated with 2,350 pounds of Abate 5BG (temephos) at an application rate of 2 pounds per acre. Target mosquito species were *Aedes canadensis*, *Ae. vexans*, *Ae. sticticus*, *Ae. trivittatus*, *Anopheles quadrimaculatus*, *Anopheles punctipennis*, *Psorophora ferox*, *Psorophora columbiae*, and *Psorophora ciliata*. Mortality ranged from 90% - 95% in the treated blocks. Pesticide use proposals were not submitted during this period, but special use permits were issued nevertheless.

More than 1,000 *Hylobius transversovittatus* root-boring weevils eggs were implanted into purple loosestrife on the south end of the former sod farm on July 10, 1997. This all-day effort was organized by BST Gore and was undertaken by both refuge staff and about 15 refuge volunteers.



Lamar Gore explaining *Hylobius* implantation to interns Dan Schaeffer and Tami Danette.  
L. Herland 7/97

In 1998, 18,000 *Galerucella pusilla* and *Galerucella californiensis* leaf-eating beetles were released by BT Holcomb and Intern Pray. The release locations were: tract 52 (3,000 beetles), tract 57 (3,000 beetles), tract 55 (2,000 beetles), tract 15d (5,000 beetles), and tract 91a (5,000 beetles).

RM Herland developed a concept for a research project to be funded and conducted by the Biological Resources Division of the U.S. Geological Survey to determine the effects of temephos on *Galerucella* beetles. Meanwhile, Dr. Bernd Blossey from Cornell University decided to investigate this concept on his own. On March 25, 1998, Dr. Blossey met with Sussex County Mosquito Control Director Scott Crans to select a study site and to discuss implementation. Dr. Blossey returned in May to set up 19 enclosures in which *Galerucella* beetles were released. Scott Crans hand sprayed the plants with mosquito larvicides according to established protocol. The first application was on May 29, 1998. Weather conditions did not facilitate the research project, however.



Dr. Blossey (center) and Scott Crans (right) at *Galerucella* enclosure. FWS 6/98

11. Water Rights (Nothing to Report)
12. Wilderness and Special Areas (Nothing to Report)
13. WPA Easement Monitoring (Nothing to Report)

#### G. WILDLIFE

##### 1. Wildlife Diversity

The refuge was established as a biodiversity refuge. It has a variety of habitat types ranging from calcareous fens to hemlock ridges. A diverse wildlife population exists on the refuge year round.

##### 2. Endangered and/or Threatened Species

In 1996, the refuge contracted with the NJFGW to conduct a survey of the refuge to determine the presence or absence of bog turtles and to identify suitable bog turtle habitat. This work was conducted principally by Jason Tessauro in 1997. The NJFGW, Endangered and Nongame Species Program (ENSP) was asked to conduct this survey because of their extensive knowledge



of bog turtles in northwestern New Jersey. They had previously discovered 65 new bog turtle sites, with 46 of the 65 sites being in Sussex County. Of the 46 sites, a majority were in the Wallkill watershed. Their previous study indicated that the Wallkill watershed had the highest density of extant bog turtle sites and the highest quality bog turtle habitat in the entire state.

In the survey conducted by ENSP, 54 wetland sites on or near the refuge were selected for sampling. Each of the survey sites were visited spring through fall. Sixteen of these sites were found to be potentially suitable for turtles. Bog turtle presence was confirmed at 3 of the 16 sites. A total of 10 turtles and a recently hatched nest containing 3 shells were found at the 3 sites. The number and age structure of the turtles found at one site with the nest suggest this was a productive and potentially viable colony.

The two sites on and near the refuge were monitored sporadically during 1998. Bog turtles were not found on the refuge that year. However, Dr. Alison Whitlock of the RO came to the refuge and surrounding areas in October 1998 and found a hibernaculum on one site. It was the first time some of the refuge staff had ever seen a bog turtle.



Alison Whitlock (left) showing ROS Shryer the bog turtle she found in Warwick, NY.  
*L. Herland 10/98*

In addition to the bog turtle, the refuge hosted 47 other species listed by the State of New Jersey as endangered, threatened or special concern. The following table identifies those species.

**TABLE 10. NEW JERSEY THREATENED AND ENDANGERED SPECIES  
UTILIZING THE WALLKILL RIVER NWR**

<b>Species</b>	<b>Endangered</b>	<b>Threatened</b>	<b>Special Concern</b>
Barred Owl ( <i>Strix varia</i> )		x	
Short-eared Owl ( <i>Asio flammeus</i> )	x		
Long-eared Owl ( <i>Asio otus</i> )		x	
Barn Owl ( <i>Tyto alba</i> )			x
Red-shouldered Hawk ( <i>Buteo lineatus</i> )	x		
Sharp-shinned Hawk ( <i>Accipiter striatus</i> )			x
Broad-winged Hawk ( <i>Buteo platypterus</i> )			x
American Kestrel ( <i>Falco sparverius</i> )			x
Cooper's Hawk ( <i>Accipiter cooperii</i> )		x	
Northern Harrier ( <i>Circus cyaneus</i> )	x		
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	x		
Osprey ( <i>Pandion haleatus</i> )		x	
Peregrine Falcon ( <i>Falco peregrinus</i> )	x		
Northern Goshawk ( <i>Accipiter gentilis</i> )	x		
Savannah Sparrow ( <i>Passerculus sandwichensis</i> )		x	
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )		x	
Vesper Sparrow ( <i>Pooecetes gramineus</i> )	x		
Bobolink ( <i>Dolichonyx orzivorus</i> )		x	
Sedge Wren ( <i>Cistothorus platensis</i> )	x		
Winter Wren ( <i>Troglodytes troglodytes</i> )			x
Red-headed Woodpecker ( <i>Melanerpes erythrocephalus</i> )		x	
Great Blue Heron ( <i>Ardea herodias</i> )			x
Black-crowned Night Heron ( <i>Nycticorax nycticorax</i> )		x	
Pied-billed Grebe ( <i>Podilymus podiceps</i> )	x		
American Bittern ( <i>Botaurus lentiginosus</i> )	x		

Least Bittern ( <i>Ixobrychus exilis</i> )			x
Upland Sandpiper ( <i>Bartramia longicauda</i> )	x		
Spotted Sandpiper ( <i>Actitis macularia</i> )			x
King Rail ( <i>Rallus elegans</i> )			x
Common Nighthawk ( <i>Chordeiles minor</i> )			x
Least Flycatcher ( <i>Empidonax minimus</i> )			x
Horned Lark ( <i>Eremophila alpestris</i> )			x
Cliff Swallow ( <i>Petrochelidon pyrrhonota</i> )			x
Veery ( <i>Catharus fuscescens</i> )			x
Gray-cheeked Thrush ( <i>Catharus mimimus</i> )			x
Golden-winged Warbler ( <i>Vermivora chrysoptera</i> )			x
Northern Parula ( <i>Parula americana</i> )			x
Black-throated Green Warbler ( <i>Dendroica virens</i> )			x
Cerulean Warbler ( <i>Dendroica cerulea</i> )			x
Kentucky Warbler ( <i>Oporornis formosus</i> )			x
Canada Warbler ( <i>Wilsonia canadensis</i> )			x
Yellow-breasted Chat ( <i>Icteria virens</i> )			x
Eastern Meadowlark ( <i>Sturnella magna</i> )			x
Wood Turtle ( <i>Clemmys insculpta</i> )		x	
Bog Turtle ( <i>Clemmys muhlenbergii</i> )	x		
Blue Spotted Salamander ( <i>Ambystoma laterale</i> )	x		
Long-tailed Salamander ( <i>Eurycea longicauda</i> )		x	
Bobcat ( <i>Lynx rufus</i> )	x		

Source: NJFGW, ENSP

### 3. Waterfowl

Canada goose populations on the refuge appeared to increase during this period, and mute swan were observed for the first time. Mallards, green-winged teal, American black duck, gadwall, and wood duck were also observed on the refuge. In 1998, BT Holcomb added Canada goose eggs at one refuge location.

BT Holcomb began conducting weekly waterfowl surveys after his arrival at the refuge in August 1997. In 1998, waterfowl surveys were conducted weekly by BT Holcomb at 20 locations on the refuge.

#### 4. Marsh and Water Birds

Marsh and water birds observed on the refuge include great egret, great blue heron, green heron, Virginia rail, king rail, American bittern, and American coot. Great blue heron and green heron are commonly seen on the Wood Duck Trail during the summer.

#### 5. Shorebirds, Gulls, Terns, and Allied Species

Killdeer, ring-billed gull, greater yellowlegs, upland sandpiper, spotted sandpiper, solitary sandpiper, least sandpiper, common snipe were observed on the refuge, primarily along the Wallkill River. We hope to increase habitat for these species through the wetland enhancement project at the former sod farm.

#### 6. Raptors

On February 23, 1997, RM Herland met with Dr. John Smallwood, a professor at Montclair State University, about a kestrel project he wanted to initiate on the refuge. This project consists of erecting nest boxes on telephone poles along refuge roadways, monitoring nests to determine species that are breeding in the boxes, destroying the nest of undesirable species such as cowbirds or house sparrows, and banding and weighing kestrel chicks.

Red-tailed hawk were common throughout the refuge. Cooper's hawk and sharp-shinned hawk were not uncommon. The northern harrier was found throughout the refuge; its largest population is in winter and it is most commonly found around the Liberty Loop Trail. The short-eared owl winters on the refuge in the wet meadows and grasslands in this same area. Other species regularly observed include osprey, broad-winged hawk, turkey vulture and black vulture. The most common owls on the refuge are barred owl, great horned owl, and Eastern screech owl.

#### 7. Other Migratory Birds

In 1998, with BT Holcomb on staff to organize surveys following specific refuge protocol, staff and volunteers began a series of surveys to inventory the use of the refuge by migratory birds. Landbird surveys were conducted at the Galeville Army Training Site from June 1 to July 15, 1998 by Volunteer Block and Intern Pray. Grassland bird surveys were conducted during this same period by Volunteers Ken Witkowski and Linda Peskac and Volunteer Block. From April 15 to May 5, BT Holcomb conducted woodcock singing ground surveys.

The refuge erected and maintained bluebird and wood duck boxes on the refuge in 1998. Most of the wood duck boxes were installed by BT Holcomb along the Wood Duck Nature Trail. Bluebird boxes are located throughout the refuge in grasslands and old fields. Bluebird box monitoring was conducted during the summer of 1998 by BT Holcomb, SCA Assistant Gray, Intern Pray and Volunteer Block.





Kevin Holcomb checking wood duck box. *FWS 2/98*

Volunteer Block and Intern Pray conducted bird inventories at the Galeville Army Training Site in 1998, gathering data for use by managers when the property is transferred in 1999.

Other migratory birds observed on the refuge during this period included:

Common nighthawk	N. rough-winged swallow	Cedar waxwing
Rock dove	Chimney swift	Red-eyed vireo
Mourning dove	American crow	Warbling vireo
Black-billed cuckoo	Fish crow	Yellow-throated vireo
Yellow-billed cuckoo	Blue jay	White-eyed vireo
Ruby-throated hummingbird	Black-capped chickadee	Blue-winged warbler
Belted kingfisher	Tufted titmouse	Black and white warbler
Red-headed woodpecker	White-breasted nuthatch	Common yellowthroat
Pileated woodpecker	Brown creeper	Yellow warbler
Northern flicker	House wren	Wilson's warbler
Red-bellied woodpecker	Carolina wren	Prairie warbler
Downy woodpecker	Marsh wren	Palm warbler
Hairy woodpecker	Winter wren	Chestnut-sided warbler
Yellow-bellied sapsucker	Golden-crowned kinglet	American redstart
Eastern kingbird	Ruby-crowned kinglet	Worm-eating warbler
Least flycatcher	Blue-gray gnatcatcher	Yellow-rumped warbler
Alder flycatcher	Hermit thrush	Magnolia warbler
Great crested flycatcher	Wood thrush	Blackburnian warbler
Eastern phoebe	Brown thrasher	Ovenbird
Eastern wood-pewee	American pipit	Northern waterthrush
Purple martin	Gray catbird	Red-winged blackbird
Cliff swallow	Northern mockingbird	Rusty blackbird
Barn swallow	Eastern bluebird	Brown-headed cowbird
Tree swallow	American robin	Common grackle
Bank swallow	Veery	Bobolink
	Wood thrush	Eastern meadowlark

European starling  
Orchard oriole  
Baltimore oriole  
Scarlet tanager  
House sparrow  
Northern cardinal  
House finch  
Purple finch  
Common redpoll  
American goldfinch  
Blue grosbeak  
Indigo bunting  
Rose-breasted grosbeak  
Eastern towhee  
White-throated sparrow  
Chipping sparrow  
Field sparrow  
Swamp sparrow  
Grasshopper sparrow  
Savannah sparrow  
Song sparrow  
Fox sparrow  
Vesper sparrow  
White-crowned sparrow  
Lincoln's sparrow  
Dark-eyed junco

8. Game Mammals

Furbearers of economic importance inhabiting the refuge include beaver, muskrat, mink and racoon. Muskrat, beaver, and raccoon are plentiful along the Wallkill River and its tributaries. Beaver occupy bank lodges on the Wallkill River and construct lodges in other streams and wetlands. A large lodge is located near the entrance to the Wood Duck Nature Trail on Rt. 565; another lodge that resulted in complaints from adjacent landowners is located on a tributary to the Wallkill River on the Louis Myslinski property near Owens Station Road.

9. Marine Mammals (Nothing to Report)

10. Other Resident Wildlife

SCA Associate Schaeffer and Volunteers Denette and Auermuller conducted a two-day deformed amphibian survey on the refuge in early August 1997. Of 125 frogs collected, none showed any physical deformities. The malformed frog survey was performed again in 1998 by BT Holcomb, Intern Pray, and Volunteer Orin Sheehan. Captured on the refuge during the 1998 survey were bullfrogs, green frogs, northern leopard frogs, pickerel frogs, and red-spotted newts. 5 adult

green frogs, 4 adult northern leopard frogs and 1 red-spotted newt were considered malformed by the investigators and were forward to Laura Eaton-Poole of the New England Field Office for further analysis.

Refuge Volunteer Witkowski began recording butterflies he observed while on the refuge. Species observed in this period include:

Cabbage white	Clouded sulphur	Common ringlet
Monarch	Orange sulphur	Common wood nymph
Viceroy	Pearl crescent	Little wood satyr
Red admiral	Summer azure	Eastern tailed blue
Eastern tiger swallowtail	Eastern comma	Common sootywing
Black swallowtail	Least skipper	Eyed brown
Spicebush swallowtail	Great spangled fritillary	Appalachian brown

Numerous small mammals such as voles, shrews and mice are common in the upland fields and shrub habitats. These small mammals form a large component of the raptor forage base in the local area.

On February 23, 1998, RM Herland and BT Holcomb brought Dr. Lance Risley to several locations on the refuge that might be suitable sites for the bat research he wanted to conduct.

Black bear populations are increasing in the area. Bobcat still remain elusive. Kristi MacDonald of the Wildlife Conservation Society conducted scent trapping on the refuge but was not successful.

#### 11. Fisheries Resources

Papakating Creek, a tributary of the Wallkill River, is classified as trout maintenance down to the Route 629 bridge in Frankford Township and nontrout for its remaining length down to the Wallkill River confluence. The classification of the waters within the refuge are "nontrout". The Wallkill River does support a warmwater fishery for largemouth bass, pickerel, perch, sunfish, and bullhead.

#### 12. Wildlife Propagation and Stocking

A family of 9 mallard ducklings that were rescued in Teaneck, New Jersey were released at the footbridge on the Wood Duck Nature Trail on May 31, 1997.

Thirty-two black ducks (16 pairs) were released on March 28, 1998 on the refuge on tract 51. The birds were produced at the Patuxent Wildlife Research Center and were not needed for their original purpose, so they were given to the refuge for release. BT Holcomb did the actual release.



Kevin Holcomb releases black ducks on the refuge. *FWS 3/98*

- 13. Surplus Animal Disposal (Nothing to Report)
- 14. Scientific Collections (Nothing to Report)
- 15. Animal Control (Nothing to Report)
- 16. Marking and Banding

Refuge staff and volunteers again provided assistance to the NJFGW with Canada goose banding for two days each in 1997 and 1998. In 1998, over 1,300 geese were banded.



Intern Chris Pray, standing inside Canada goose cage, assists with goose banding project.  
*K. Holcomb 7/98*

Dr. John Smallwood of Montclair State University, operating under SUP #92846, banded 4 adult female, 7 immature female, and 7 immature male kestrels on the refuge in 1997. In 1998, 7 adult female, 1 adult male, 5 immature female, and 8 immature male kestrels were banded at nest boxes erected on the refuge.

BT Holcomb worked with the NJFGW to make and deploy three sets of duck traps on the refuge in September 1997. The trap design was adapted from that developed some time ago by Montezuma NWR. Kevin acquired some duck banding equipment as well from the State. The traps were deployed for several weeks but no ducks were captured, due in part to low water levels as a result of a drought.

17. Disease Prevention and Control (Nothing to Report)

## H. PUBLIC USE

### 1. General

The refuge opened to non-consumptive public use in 1997 (wildlife observation by foot and canoe), expanded its hunting program, and developed a fishing program. This decision was made by RM Herland after considerable review of information about human disturbance. It was strongly felt by RM Herland and others that a balanced public use program would increase public support for the refuge. To date, this has proven to be the case. The number of visitors to the refuge was estimated to be 3,832 in FY 1997. In FY 1998, this number increased dramatically to an estimated 18,027 visitors who used the refuge for hunting, fishing, or wildlife observation.

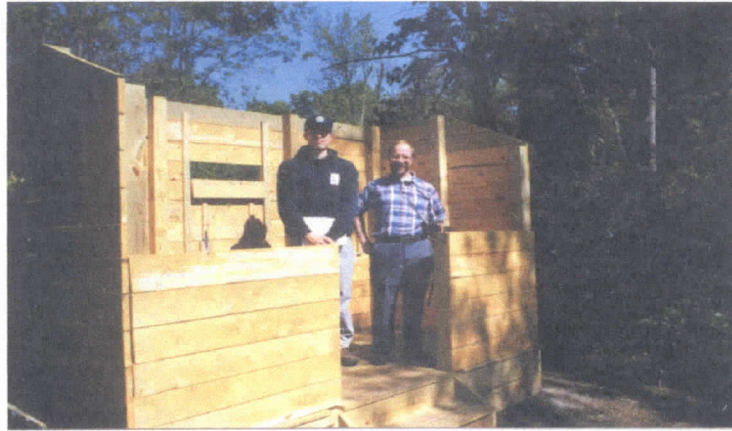
In 1997, the refuge agreed to participate in the New Jersey Watchable Wildlife program. The refuge was included in the New Jersey Wildlife Viewing Guide.

The first refuge bird list brochure arrived from the Government Printing Office in August 1997.

Noted wildlife photographer, videographer, and writer Leonard Lee Rue III delivered a 5-minute video in May 1998 that he made from footage he shot while at the refuge. He donated his efforts to the refuge for the benefit of our visitors, at an estimated value of \$6,000.

Visitor Services Specialist Tom Comish came to the refuge on May 28 and 29, 1998, to conduct a public use station review. He was taken to current and potential visitor services sites on the refuge by RM Herland and SCA Resource Assistant Gray.





SCA Resource Assistant Gray (left) and Tom Comish visit the wildlife photography blind on the Wood Duck Nature Trail. *L. Herland 6/98*

## 2. Outdoor Classrooms - Students

ROS Robichaud presented a slide program about the refuge and wildlife to over 400 6<sup>th</sup> and 7<sup>th</sup> graders at the Lake Fairview YMCA camp on March 17 and 19, 1997. ROS Shryer gave a presentation about African wildlife to 375 students at the Lake Fairview YMCA Camp on March 16 and 18, 1998.

BT Holcomb continued the representation of the refuge at Orange County Conservation Days when he presented 8 programs to over 900 6<sup>th</sup>-graders on September 23-24, 1998 at the Thomas Bull Memorial Park. The topic was "Waterfowl".

On September 9-11, 1998, BT Holcomb participated in the Jersey Jamboree at Waterloo Village at the request of the Morris-Sussex Area Council of the Boy Scouts of America. About 8,000 youths attended the jamboree.

On October 21, 1998, ROS Shryer discussed wetlands restoration at the former Liberty Sod Farm with a group of 12 students from Ramapo College.

## 3. Outdoor Classrooms - Teachers (Nothing to Report)

## 4. Interpretive Foot Trails

ROS Robichaud submitted and prepared a \$2,000 grant application from the National Rifle Association to develop an educational kiosk and a parking area for the Wood Duck Nature Trail. The NRA awarded the refuge \$1,000 which was used to purchase materials for the new nature trail. RM Herland developed a proposal for \$3,250 from the Pilot Fee Challenge Cost Share Program for development of a 6-car parking area for the Wood Duck Nature Trail. This funding was used to tar and chip the lot, purchase round rail fence, and wheel stops.

Refuge volunteers and staff cleared the trail, the parking area, and installed the fence. The

refuge's first Eagle Scout, Tom Michaels, designed and constructed the trail kiosk. He erected it with assistance from Volunteers Bernie Panzenhagen and Jim Sullivan. Much of the volunteer assistance for clearing the trail came from the New Jersey Forest Fire Service, the community service program, and Volunteer Panzenhagen, who coordinated the trail clearing. The involvement of Volunteer Panzenhagen was so pivotal that we named a point on the trail after him.



Bernie Panzenhagen on Wood Duck Trail. *J. Panzenhagen 10/97*

Volunteers from the Bergen County Audubon Society (BCAS) conducted a cleanup of the trail on September 27, 1997.

The formal opening of the trail took place at a dedication ceremony on October 12, 1997. About 100 people participated in the event. Wantage Mayor John Nuss and RM Herland cut the ribbon after volunteers who had worked on the trail were recognized with certificates of appreciation. Guided bird walks, including an introduction to birdwatching sponsored by the BCAS, followed. We received favorable press attention for this event, which highlighted our kick-off to National Wildlife Refuge System week.



Wantage Mayor John Nuss and Refuge Manager Libby Herland cut the ribbon to open the Wood Duck Nature Trail. *J. Sullivan 10/97*



Refuge Volunteer Auermuller and SCA Resource Assistant Schaeffer prepared the first draft of the Wood Duck Nature Trail brochure in 1997.

In 1998, the Wood Duck Nature Trail was expanded to the Wallkill River with the construction of two footbridges. One 25-foot bridge built by SCA Resource Assistant Gray and Volunteers Panzenhagen, Frank Madaio, and Bob Gregoire was completed in June 1998. Two 40-foot long telephone poles donated by PSE&G, through the efforts of local resident and employee Chris Fuerher, were used as the base for the footbridge. A second 15-foot bridge, built by Matt Martyniuk as his Eagle Scout project, was completed in August 1998. Also in 1998, Eric Kleiner completed his Eagle Scout project on the Wood Duck Nature Trail by filling holes, bringing in wood chips, and building and installing benches.

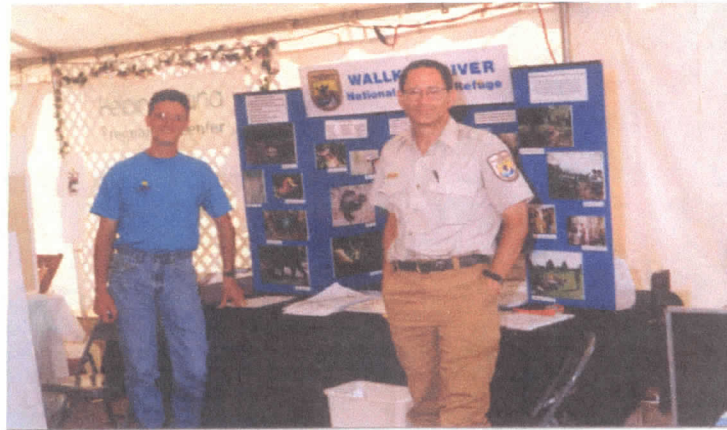


Footbridge on the Wood Duck Nature Trail built by Eagle Scout candidate Matt Martyniuk.  
*L. Herland 8/98*

5. Interpretive Tour Routes (Nothing to Report)

## 6. Interpretive Exhibits/Demonstrations

In August 1997, a refuge exhibit and information table was displayed at the Sussex County Farm and Horse Show. Refuge staff and refuge volunteers staffed the table during the 10-day fair. Over 2,000 individuals stopped to look over the exhibit, take brochures and informational leaflets, and talk with refuge staff and volunteers.



Intern Chris Pray (left) and ROS Shryer manning the booth at the farm and horse show.  
*FWS. 8/98*

From July 31 - August 9, 1998, a refuge exhibit and information table was again displayed at the Sussex County Farm and Horse Show. Refuge staff and refuge volunteers staffed the table during the 10-day fair. Over 2,700 individuals stopped to look over the exhibit, take brochures and informational leaflets, and talk with refuge staff and volunteers.

RM Herland and BT Holcomb staffed the Service's booth at the Big E in Springfield, Massachusetts on October 1, 1998. They were joined by Robin Heubel of the RO. This was a very large outreach event for the Service and involved staff from both the RO and many field stations to be successful.



(L - R) Libby Herland, Kevin Holcomb, Robin Heubel. FWS 9/98

## 7. Other Interpretive Programs

The refuge attempted to hold an International Migratory Bird Day event on May 9, 1998. BCAS had agreed to lead a guided bird walk in the morning. Highlands Audubon Society had agreed, along with Volunteer Diane Banks, to hold activities for children at 10:00 am, and at 2:30 pm Montclair State University student and kestrel researcher Chris Natale offered to give a kestrel nest box demonstration. The event was to be canceled in case of rain, as it was scheduled at the Wood Duck Nature Trail (the Owens Station building was still under renovation at this time). That Saturday morning came very wet and very cold. The wind howled all day and the rain poured, so the event was canceled. It did take a lot of planning however, most of which was done by OA Stephenson.

Talks given in 1997 and 1998 follow:

TABLE 11. INTERPRETIVE PRESENTATION GIVEN IN 1997 AND 1998				
Date	Presenter	Group	Location	Audience
1-28-97	RM Herland	Sparta High School Environmental Club	Sparta, NJ	20
2-6-1997	RM Herland	Wallkill Valley Rotary Club	Wantage, NJ	30
2-10-97	RM Herland	Sparta High School	Sparta, NJ	20
2-14-97	RM Herland	Orange County Land Trust	Middletown, NY	10
3-11-97	ROS Robichaud	Warwick High School	Warwick, NY	50
3-13-97	ROS Robichaud	Unionville Presbyterian Church	Unionville, NY	16
3-17-97	RM Herland	West Milford Woman's Club	West Milford, NJ	20
3-25-97	RM Herland	Vernon Rotary Club	Vernon, NJ	15



4-17-97	RM Herland	Sierra Club of North Jersey	Oakland, NJ	10
5-14-97	RM Herland	Newton Rotary Club	Lafayette, NJ	75
5-28-97	ROS Robichaud	Glen Meadows Middle School - 7 <sup>th</sup> Grade	Glen Meadows Middle School	50
10-18-97	RM Herland	Montclair Bird Club	Montclair, NJ	20
10-16-97	BT Holcomb	4-H Farm Friends	Wood Duck Trail	20
10-20-97	BT Holcomb	Cub Scout Den #5, #6, #7 Vernon Pack #283	Wood Duck Trail	20
11-18-97	RM Herland	Gifted and Talented Students	Sussex Middle School	80
11-19-97	RM Herland	Bergen County Audubon	Flat Brook Nature Center Englewood, NJ	40
11-19-97	BT Holcomb	Franklin Boy Scout Group	Franklin, NJ	10
2-13-98	BT Holcomb	Cub Scout Group	Sussex, NJ	10
5-8-98	RM Herland	Glen Meadows Middle School Learning Disabled Group	Wood Duck Trail	6
5-12-98	BT Holcomb	Pine Island Elementary School 3 <sup>rd</sup> and 4 <sup>th</sup> Graders	Pine Island, NY	25
5-17-98	RM Herland	Outdoor Days	Mahlon Dickerson State Park	50
5-20-98	BT Holcomb	Cub Scout Group	Wood Duck Trail	10
5-21-98	ROS Shryer	Sierra Club of Northern NJ	Oakland, NJ	14
5-27-98	ROS Shryer	Glen Meadows Middle School	Glen Meadows Middle School	20
6-18-98	BT Holcomb	Cub Scout Pack #276 and 151 WEBELOS	Wood Duck Trail	10
6-26-98	RM Herland	Sussex Rural Electric Co-op	High Point Regional High	150
9-2-98	RM Herland	Sussex County Peace Officers	Pochuk Valley VFD	35
9-15-98	RM Herland	High Point Garden Club	Hamburg, NJ	12
9-24-98	BT Holcomb	Explorer Post 19	Environmental Education Center	10
10-10-98	RM Herland	Sussex County Beekeepers Association	Sussex County Fairgrounds Admin	60
10-17-98	BT Holcomb	Sussex Middle School Science Club	Sussex Middle School	68

10-9-98	BT Holcomb	Lounsberry Hollow Middle School 5 <sup>th</sup> Grade	Lounsberry Hollow Middle School	15
11-9-98	BT Holcomb	Glen Meadows Primary School 7 <sup>th</sup> and 8 <sup>th</sup> Grades	Glen Meadows Middle School	15
11-12-98	ROS Shryer	Explorer Post 19	Wallkill River NWR	12
11-20-98	BT Holcomb	3 <sup>rd</sup> Grade Class	Wood Duck Trail	10

## 8. Hunting

An additional 450 acres of newly acquired land were opened to hunting in 1997. Land along the newly opened Wood Duck Nature Trail was closed, though, for the 3-day permit shogtun season. Additionally, an extended scouting season was offered for the first time, in response to the many requests received from hunters.

The refuge opened to resident Canada goose hunting during the winter season for the first time. The hunt took place in January-February 1998. Channel 12 News held a live interview on the refuge on January 22, 1998 to draw attention to the resident goose hunt. RM Herland, BT Holcomb and Al Ivany from the NJFGW were the interviewees. There was a lot of media interest in this hunt, with a fair amount of negativity. One news article reported that the Humane Society of the United States might sue the Service to stop the hunt, or have protesters at the refuge on opening day. However, none of that occurred and the hunt was quiet and uneventful.



Canada goose hunters on the refuge. *FWS 2/98*

The refuge opened to spring turkey hunting in April 1998. The hunt was very successful.

In October 1998, the refuge opened to bow hunting during the regular deer season for the first time. Previously, the refuge had only been opened during the permit season. There was considerable interest expressed in the regular season by refuge hunters, and there did not seem to be any justifiable reason to be closed during that time, so the season was opened on an experimental basis. No complaints were registered from non-hunters.

## 9. Fishing

The refuge was opened for fishing in 1998 along the banks of the Wallkill River at Bassetts Bridge in New Jersey and Oil City Road in New York. People can walk along the bank at those locations or fish from boats in the river.

In July 1998, RM Herland began working with a volunteer engineer and members of the disabled community to begin developing plans for a boardwalk and fishing platform at Bassetts Bridge that would provide opportunities for people in wheelchairs to access the river for fishing. A lot of positive energy was apparent at first, but no sustained effort on the part of the volunteers occurred and the project was never developed. In the meantime, RM Herland had drafted a proposal for \$15,000 of recreational fee money for this project. The funding was received but was used for other recreational projects on the refuge.

## 10. Trapping

BT Holcomb completed the refuge's first trapping plan, received the approval of regional biologist Hal Laskowski, prepared a press release and had his first newspaper interview as a Service employee. The refuge opened for muskrat and beaver trapping in 2 units on 500 acres of the refuge. These were essentially the northeastern most point on the refuge and were lands primarily associated with the former Liberty Sod Farm. Trapping Unit 1 was in New York State; trapping Unit 2 was in New Jersey. We required potential bidders to come to an orientation at the future refuge headquarters on the former Dagmar Dale farm. The meeting was held on the evening of November 10, 1997 and was well attended. However, not much interest was actually expressed in the form of bids. Only one bid was received on each trapping unit. The trapping season began on November 29, 1997 and was very successful in removing muskrats from the refuge. These muskrats had been burrowing holes in the sod farm enhancement project dikes and had caused extensive damage. Beaver trapping was allowed where beavers had been flooding adjacent pumpkin farmers, but no beavers were removed. The program was repeated in 1998 but the muskrat harvest was significantly diminished. No trapping occurred on the refuge after the conclusion of the 1998-1999 trapping season.

## 11. Wildlife Observation

River access was provided at Bassetts Bridge on the Wallkill River in large part due to the efforts of SCA Resource Assistant Gray, who cleared a canoe and fishing access trail to the river from the Bassetts Bridge parking lot during the summer of 1998. Volunteers Panzenhagen and Gregoire constructed a kiosk which was erected at the Bassetts Bridge site in 1998.





Volunteers Bob Gregoire (left) and Bernie Panzenhagen building kiosk at Bassetts Bridge Fishing and Canoe site. *L. Herland 7/98*

The Liberty Loop Trail, a 2.5-mile loop which is partially co-aligned with the Appalachian Trail, was opened in 1998. RM Herland coordinated with the New Jersey Appalachian Trail Management Committee, the NPS, the Appalachian Trail Conference, and the New York-New Jersey Trail Conference before completing trail plans. Approval to co-align the trail with the Appalachian Trail was received in January 1998. An existing parking area was improved to provide trail access. The trail was built upon part of the former Lehigh and New England railroad bed and the internal dike system built by the previous owners of the Liberty Sod Farm. Volunteers Gregoire and Madaio constructed and erected a kiosk in the trail parking lot.

The BCAS, led by Ken Witkowski, co-hosted a “woodcock walk” on the refuge in April 1998. It was attended by 15 people who had never been to the refuge before. They were lucky to see 4 woodcock in courtship display. This was the first of what became an annual tradition on the refuge.

Wildlife observation along the Wallkill River was facilitated in September 1998 when BT Holcomb led Explorer Conservation Post 19 members in a cleanup and snag removal along the river.

The refuge hosted a guided bird walk on October 17, 1998 to celebrate National Wildlife Refuge Week. Co-hosted by the BCAS, Volunteer Witkowski (and BCAS board member) led the walk on the Wood Duck Nature Trail. In preparation for that walk, OA Stephenson organized and assisted teachers and students from the 5<sup>th</sup> grade Lounsberry Hollow Middle School in a clean-up of the trail.

## 12. Other Wildlife Oriented Recreation

On October 14, 1997, BT Holcomb and RM Herland walked the Wood Duck Nature Trail with noted wildlife photographer Leonard Lee Rue and volunteers Gene Stires, Panzenhagen, and

Madaio. Mr. Rue showed us several points along the trail that would be excellent locations for a wildlife observation/photography blind.

13. Camping (Nothing to Report)

14. Picnicking (Nothing to Report)

15. Off-Road Vehicling

The illegal use of all terrain vehicles and dirt bikes, and the occasional use of the refuge by mountain bikers, remained a concern at the refuge. These uses cause significant erosion resulting in sedimentation of refuge streams and wetlands. They also cause significant disturbance to resting, feeding, and breeding wildlife.

16. Other Non-Wildlife Oriented Recreation

The requests from model airplane flyers to be allowed to re-commence use of the Galeville Army Training Site, once it becomes a refuge, continued. Even though the property is not yet in refuge ownership, the model airplane community was diligent in keeping the issue alive and in the mind of Congressman Ben Gilman. Mr. Gilman does not have the proposed refuge in his district, but he has become a leading advocate of the rights of the model airplane flyers. As a result of a June 19, 1998 meeting with Congressman Gilman, in which he demanded that we reach a compromise with the modelers, RM Herland had several conversations with representatives of that interest group to learn more about their activity and their desired use of the site. They indicated that there was year-round demand for individual flying practice, that group competitions of up to 300 people were desired several weekends a year from spring through fall, and that both radio-controlled and free flight planes would be flown. These conversations strengthened the conviction of refuge staff that model airplane flying was an inappropriate activity on the refuge and that no compromise was possible.

17. Law Enforcement

MW Terry Mitchell successfully completed the 13-week 11LM course at the Federal Law Enforcement Training Center in Glynco, Georgia. Terry scored very well on his academic testing, received an expert rating on his firearms qualifications, and came extremely close to a perfect physical efficiency battery score. He returned to the refuge on February 13, 1997. In March 1997, Refuge Officer Mitchell met with Vernon Police Chief Johnson to discuss mutual cooperation for LE efforts on the refuge. He completed Refuge Officers Basic School in August 1997.

The first notice of violation issued by Refuge Officer Mitchell was for trespassing in a closed area using a motor vehicle. This notice, issued in June 1997, marked the beginning of a concerted effort on the part of Refuge Officer Mitchell to deter illegal ATV and dirt bike use on the refuge. Significant strides in curtailing this use were made by Refuge Officer Mitchell.



RM Herland investigated an illegal camping site on the Wallkill River at Bassetts Bridge in 1997. Because Refuge Officer Mitchell was away at law enforcement training, assistance was requested and received from Conservation Officer Roger Nestle and a New Jersey State Trooper. One of the individuals camping on the refuge was arrested for illegal possession of paraphernalia. This individual also had an outstanding warrant for his arrest.

On December 12, 1998, RM Herland, BT Holcomb, and Volunteer Sullivan installed a round-rail fence around the cul-de-sac at Landrud Circle in an attempt to prevent unauthorized access to the refuge by ATVs and vehicles. This fence was installed in large part due to complaints from neighbors about ATVs and hunters parking in the cul-de-sac for refuge access.

18. Cooperating Associations (Nothing to Report)

19. Concessions (Nothing to Report)

#### I. EQUIPMENT AND FACILITIES

1. New Construction (Nothing to Report)

2. Rehabilitation

The first official look at the possibility of using the residence at the Dagmar Dale Farm occurred on February 11, 1997 when Kurt Otting from RO Engineering and refuge staff measured the farmhouse and the creamery. The farmhouse will be used as an office and the 4-room creamery will be converted to a maintenance shop.

Jerry Loomis, electrician from Eastern Shore of Virginia, began rewiring the Dagmar Dale farmhouse on July 12, 1997 for use as a refuge office. During the course of his work, he discovered that some of the girders holding up the first floor were more severely damaged by termites than had previously been recognized. The re-wiring effort was suspended and the building evaluated to determine the extent of repair needed in the girders, joists and beams. A difference of opinion soon developed between the Regional Engineering Office and Refuges and Wildlife staff about the seriousness of the problem. RM Herland contracted with an engineer with considerable expertise in old house restoration. Mr. John Dalessio conducted a full structural engineering report and determined that the building could be repaired.

With funding available for rehabilitation, the decision was made that it was more feasible to repair the structure than try to find funds for new construction. In early 1998, design plans were developed by Beardslee Associates. RM Herland worked closely with Teri Neyhart and Jeff Tubman of the RO on the design. In January 1998 the decision was made to remove the plaster and lathe from all the interior walls, except the back staircase, and the first floor ceilings. RM Herland led a 3-month effort working with refuge volunteers, MW Mitchell and BT Holcomb to complete demolition required for renovation.



Refuge headquarters renovation. The ceramic stove shown in this photo was hidden behind a wall.  
*L. Herland 4/98*

Enviro-Serve from Maryland was issued the contract for the office renovation, which began on July 20, 1998. Overseeing the construction and completing daily inspector's logs took up considerable time for the rest of the year.

On March 3, 1997, MW Terry Mitchell began the challenging task of converting the former creamery at the Dagmar Dale Farm to a refuge maintenance shop. This project took MW Mitchell several months. He designed and built everything himself. The doors in the 3-bay garage were replaced by refuge volunteers with new insulated doors in August 1998.

Also located on the former Dagmar Dale Farm was a pole barn which had use for equipment storage. RM Herland worked with community service volunteers to begin the renovation of that building for use on January 4, 1998. On that day, vegetation was removed from around the barn and a storage room was cleaned out. In November 1998, new double-paned windows were installed in the storage room by Volunteer Sullivan, who also framed out and installed a garage door retrieved from another refuge barn. Lastly, an above-ground fuel tank was removed in November 1998 by Above Environmental Services.



Refuge volunteer Jim Sullivan installing framing for new garage door. *L. Herland 11/98*

Dan the Carpetman installed silver quality linoleum in the rooms at the refuge dormitory (Quarters 3) in May 1997. This building was painted refuge volunteers in September 1997.

In May 1998, the nurses station located in the bathhouse near Quarters 3 was converted into a kitchen for summer interns and volunteers. A wall was removed, urinals from the boys bathroom were removed, a new wall was installed, electrical and plumbing upgrades completed, a new vinyl floor was installed, new windows were installed, and a new stove and refrigerator were installed. Cabinets and the sink from one of the three kitchens in the Dagmar Dale farmhouse were moved into the volunteer kitchen. The building was also painted. The majority of this work was community service workers and other refuge volunteers, and was completed by September 1998.



The finished product! Owen Station intern/volunteer kitchen facility. *K. Holcomb 10/98*

Morris Asphalt was hired in April 1997 to tar and chip the Wood Duck Nature Trail parking lot.

In August 1997, RM Herland and Volunteer Chad Lewis removed plaster from the walls and ceiling in the Quarters 2 living room. MW Mitchell replaced the bathroom tub with a fiberglass shower and tub. MW Mitchell and Volunteer Al DeRoo installed drywall in living room. All new replacement windows were installed by volunteers in October 1997. All windows were trimmed by Volunteer Sullivan. The laundry room was rebuilt by volunteers in December 1997. The exterior was resided with vinyl siding by a local contractor in January 1998. The asbestos siding was removed first and disposed of in accordance with State regulations at the Sussex County landfill.

Re-roofing of the Owens Station Environmental Education Building roof began in October 1997. The roof had been damaged by a major snow storm on April 1, 1997, and extensive leaking had occurred in the building over the summer. The contractor was All-Industrial Roofing. Several problems occurred during the project, but the roof was successfully completed. However, soffit removal and replacement and concrete floor refinishing did not go well. The contractor defaulted and the work was completed during the summer of 1998 by another contractor. In September 1998, D&S Construction extended the disabled-access ramp at the building so that it ran the full width of the sidewalk, eliminating a tripping hazard that had been created when only half the width of the sidewalk had been made accessible in 1995.

The building which served as the refuge headquarters for most of this reporting period, located at 376 Rt 284, had some work completed in it during this period. Local plumber Tom Haas removed the non-functional basement bathroom in January 1998. This building became Quarters 4 upon vacancy.

The acquisition of tract 55 at 285 Lake Wallkill Road included a house that was converted to use as Quarters 5. An assessment of the house was conducted on February 10, 1998. The building needed insulation, new windows, a new toilet, a stove, and needed to be painted. A contractor was hired to blow in insulation in the living room. Replacement windows were installed by MW Mitchell and Volunteer Gregoire.

### 3. Major Maintenance

Underground fuel tanks at the volunteer kitchen at 119 Owens Station Road and the refuge headquarters at 376 Route 284 were removed and replaced with above ground tanks in January 1997. The work was conducted by A-bove Environmental Services of Vernon, New Jersey. Underground fuel tanks at the Dagmar Dale farmhouse (future office) were removed in June 1997. The tank removal was contracted and paid for by the Trust for Public Land.

Lead paint testing was conducted at all 119 Owens Station Road buildings on February 12, 1997 and the Dagmar Dale Farm creamery. No lead paint was detected in any of the buildings.

Asbestos testing in the proposed new office location and maintenance shop was conducted on February 27, 1997 by Detail Associates, Inc. Asbestos was found in pipe insulation in the old farmhouse and the floor tiles in the two small rooms off the living room. The asbestos

remediation was completed on May 5, 1997 by D&S Restoration. Further asbestos was found in kitchen pipes after demolition of the first floor ceilings. Asbestos testing was conducted on the roof felt and flashing, the material beneath the aluminum siding and window caulking in early 1998. All those tests proved negative.

MW Mitchell demolished 4 small, decrepit barns on tracts 74 and 79 in June 1997.

The NJ Department of Transportation paved the driveway and parking lot of the refuge headquarters on Rt 284 at no cost on August 14, 1997. Upon completion of their re-paving of Rt. 284, they had surplus asphalt which they laid and rolled for us.

The well pump and expansion tank at Dagmar Dale Farm replaced in late September 1997.

Lead paint testing was conducted at the Dagmar Dale Farmhouse on December 7, 1997. Many rooms had no lead paint anywhere. However, just as many had lead paint somewhere. Lead was found in window sills, sashes and casings, door jambs, baseboard trim, etc.

A lead paint analysis of Quarters 5 was conducted on February 17, 1998. Most of the interior trim was not lead based paint, but it was found on some window wells and jambs and the outside parts of all the windows. Some of this lead was then abated when replacement windows were installed.

RM Herland prepared a request to salvage the carriage barn on tract 15d and sent it to Contracting and General Services on March 2, 1998 for preparation of a bid package. The contract was awarded for a bid of \$100. Demolition work began in 1998. Unfortunately, very little of the wood was sold or taken by the bidder, and refuge staff and volunteers were left with the massive task of moving beams, siding, and floor joists to the concrete slab by the shop for storage until the wood could be retrieved during the summer of 1999.

Asbestos ceiling tile was removed from the refuge maintenance shop (tool room ceiling) and the wall and ceiling of an extension on the tract 57 barn on September 21, 1998. Work was completed by D&S Restoration.

Water testing in September 1998 indicated the presence of coliform bacteria in the wells at the refuge office on Rt 284 and the Owens Station environmental education building. The wells were chlorinated in October 1998 and the problem resolved. No staff or volunteers were ever sick.

Detail Associates conducted asbestos testing at the refuge office on Rt. 284 and the barn on tract 43 (Cosh farm).

Termite and carpenter ant treatment at Quarters 5 and Owens Station volunteer kitchen and bathhouse was conducted in November 1998.



#### 4. Equipment Utilization and Replacement

Chincoteague NWR donated a used Honda all terrain vehicle to the refuge in March 1997. This ATV was used extensively by Refuge Officer Mitchell in his undercover efforts to catch illegal ATV riders on the refuge.

A Hudson trailer that had been transferred to the refuge in July 1997 from the Galeville Army Training Site was stolen from the refuge shop on August 27, 1997.

A 10' John Deere rotary cutter valued at \$7,817 was purchased on September 4, 1997.

The refuge's first snowblower and snowplow was purchased in September 1997.

The John Deere 2520 tractor had extensive repairs totaling approximately \$3,500 in September 1997.

A John Deere 300B backhoe was transferred to the refuge from Ft. Meade in 1997. A new windshield and tires were installed on January 9, 1998. An 18" bucket was purchased from G&H Service also in January. It replaced the large bucket on the machine.

A 5-ton International dump truck transferred from the military in 1997 received \$10,000 worth of repairs in early 1998. While this was expensive work, it was still much less expensive than the purchase of a new truck.



Using the International dump truck for putting wood chips on the trail. *K. Holcomb 5/98*

On February 3, 1998, MW Mitchell and BT Holcomb flew to Florida to pick up a 1985 International stake truck for the refuge and a tractor trailer cab for Rachel Carson NWR.

A John Deere 6300 tractor and auger were purchased on February 5, 1998. RONS grassland restoration money funded the purchase. A bucket was purchased for the tractor in July 1998.



John Deere 6300 tractor *FWS 8/98*

Regional biologist Laskowski funded the purchase of a HB121A 12" intermediate lift Crisafulli humpback trailer pump to assist with the management of water at the sod farm enhancement project. Although this pump will be stationed at the refuge, it will be made available to other refuges in the region as well.

The refuge received a new 4-door, 4x4 Ford Explorer on September 14, 1998. This vehicle was acquired to replace a 1985 Chevy Diesel pickup.



1998 Ford Explorer *FWS 9/98*

## 5. Communication Systems

In early 1997, we entered into Memorandum of Agreements with local police departments and the State of New Jersey to facilitate radio communication. The NYDEC denied to enter into an MOA, however, so radio contact was not be made with them. Then, the equipment that we had ordered could not be used because we failed to receive a frequency from the National Communications Center. Lots of radio equipment sat in a box for a couple of years before installation in 1999.

In February 1998, RM Herland developed specifications for a telephone system that would run underground and connect the refuge office and the maintenance shop on the same phone lines. After several months of contact with vendors, a contract was awarded to Lucent to provide and install cable and phones in the new office.

In April 1998, after receiving a refuge frequency of 164.625 MHZ, ROS Shryer contacted New Jersey State law enforcement offices to receive authorization to access SPEN (the State Police Environmental Network), NJDEP, and NJFGW frequencies for purposes of efficient coordination. Interagency Radio Frequency Use Agreements were sent to these offices.

6. Computer Systems

IRM Specialist Dan Greeley from the RO came to the refuge and connected all the refuge computers to a network. This eliminated the need for a computer just for email and RMIS.

7. Energy Conservation (Nothing to Report)

8. Other

New hunt signs were erected by MW Mitchell in October 1997 in anticipation of the 1997-1998 hunting season.

BT Holcomb and refuge volunteers completed all external boundary posting on the lands encompassing the refuge by the end of October 1997.

J. OTHER ITEMS

1. Cooperative Programs

Sussex Rural Electric Cooperative agreed to install a light which they will maintain and run at their expense in the parking lot of the Wood Duck Nature Trail. The pole and light were installed in November 1997.

2. Other Economic Uses

Sussex Rural Electric Cooperative contacted the refuge in February 1997 to gain permission to remove trees on Scenic Lakes Road in Hardyston Township for the purpose of installing electric service and poles to the Scenic Lakes neighborhood. They agreed to comply with guidelines set out by RM Herland - avoid tree removal during the barred owl breeding period, limit tree removal to the narrowest band possible, and avoid herbicidal spraying on the refuge. A Special Use Permit to erect the electric transmission line was issued in October 1997.

### 3. Items of Interest

On February 6 and 7, 1997, RM Herland was interviewed by two journalists from WABC-TV, New York City, for a 2-minute consumer affairs segment. The piece will focus on the desires of the model airplane community to continue using the former Galeville Army Training Site, which is surplus Federal property. The Service has requested transfer of this site for inclusion in the Wallkill River NWR. The model airplane users contacted Channel 7 for "help" in gaining permission to continue their 25-year tradition of flying model airplanes at the former airport.

RM Herland was a founding member of a multi-agency, multi-state partnership known as the Wallkill River Task Force. Principally focused on the Wallkill River in Orange County, New York, RM Herland's participation increased knowledge of the river and its resources south (upstream) from Orange County, and led to strong conservation relationships which helped improve water quality, river access, and public support for the refuge.

Assistant Regional Director Tony Léger visited the refuge on April 10, 1998. He toured the refuge, saw the major accomplishments from the past year, and was briefed on current and future activities. On April 15, 1998, RM Herland accompanied ARD Léger on a site visit to the Galeville Army Training Site. ARD Léger also visited the new office on October 9 and December 8, 1998.

### 4. Credits

This report was principally written by RM Herland, with some sections written by ROS Shryer and OA Stephenson. Final layout was completed by OA Stephenson.

## K. FEEDBACK

The refuge took a big step forward in 1998 when we began restoring and managing habitat for wildlife, not just protecting habitat. This achievement was directly due to the acquisition of skilled staff and some heavy equipment. Also in 1998, our biological inventory program got firmly off the ground, again due to the hiring of a biological technician. In order to fully function as a refuge, basic infrastructure needs - staff and equipment - must be in place. The refuge made great strides during this reporting period in this regard.

Another reason why the refuge began to "feel" and "look" like a refuge was the opening of parts of the refuge to public use. This resulted in a tremendous increase in support for the refuge, and allowed us to better inform the public about what we do and why we do it.

During this period, in very large part due to our participation in the community service program, we made major strides in the rehabilitation of refuge buildings. More quarters became available to attract more staff to a developing, somewhat expensive part of the county. A lot of elbow grease went into these buildings at very little expense. It is amazing how having operational buildings and public facilities changed the perception of the refuge by both staff and visitors!

Finally, the establishment of the new refuge at the former Galeville Army Training Site - soon to be called the Shawangunk Grasslands NWR - took up a lot of time. The tenacity of the model airplane users, who hadn't been allowed to fly their model planes since 1995, was astonishing. Even more astonishing was the level of support they received from Congressman Gilman. A disappointment was the failure of the Town of Shawangunk to work with the us in complete good faith. We went out of our way to help the town find two alternative sites for recreational land that met their requirements so that the entire site could be protected as a refuge. We obtained funding for them, completed appraisals at no cost to them, and secured a 50-acre parcel for them at no cost, which they voted to accept and then rejected. In the celebration for the establishment of their new parks, there was no mention of the support the Service had provided. Failure for the Service to be recognized for our efforts for our assistance was the most disappointing of all my experiences as a refuge manager.

I am extremely grateful for all the wonderful events of the past two years. 1997 and 1998 were seminal years and to date, they have been the most important period for the refuge. Thank you to all the fine refuge staff and volunteers, local and state officials, and RO staff who continue to work with together for the betterment of this refuge!